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THE
ASIATIC SOCIETY OF BOMBAY
Town Hall, Bombay.

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ASIATICK RESEARCHES;

OR,

TRANSACTIONS

OF THE

SOCIETY INSTITUTED IN BENGAL,

FOR INQUIRING INTO THE

HISTORY AND ANTIQUITIES,

THE

ARTS, SCIENCES, AND LITERATURE,

VOLUME THE FIRST.

THE FIFTH EDITION.

LONDON:

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FOR VER[illegible]R, HOOD, AND SHARPE; CUTHELL AND MARTIN; J. WALKER; R. LI[illegible]; LACKINGTON, ALLEN, AND CO.; OTRIDGE AND SON; ONGMAN, HURST, REES, AND ORME; R. FAULDER; SCATCHERD AND LETTERMAN; AND J. ASPERNE.

1806.

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THE

INTRODUCTION.

IF this firſt Publication of the ASIATICK SOCIETY ſhould not anſwer thoſe expectations which may have been haſtily formed by the learned in *Europe*, they will be candid enough to conſider the diſadvantages which muſt naturally have attended its inſtitution, and retarded its progreſs. // A mere man of letters, retired from the world, and allotting his whole time to philoſophical or literary purſuits, is a character unknown among *Europeans* reſident in *India*, where every individual is a man of buſineſs in the civil or military ſtate, and conſtantly occupied either in the affairs of government, in the adminiſtration of juſtice, in ſome department of revenue or commerce, or in one of the liberal profeſſions. Very few hours, therefore, in the day or night, can be reſerved for any ſtudy, that has no immediate connection with buſineſs, even by thoſe who are moſt habituated to mental application: and it is impoſſible to preſerve health in *Bengal*, without regular exerciſe, and ſeaſonable relaxation of mind: not to inſiſt that, in the opinion of an illuſtrious *Roman*, "No one can be ſaid to enjoy liberty, "who has not ſometimes the privilege of doing nothing." All employments, however, in all countries, afford ſome intervals of leiſure; and there is an active ſpirit in *European* minds, which no climate, or ſituation in life, can wholly repreſs, which juſtifies the ancient notion, that *a change of toil is a ſpecies of repoſe*; and which ſeems to conſider nothing done or learned, while any thing remains unperformed or unknown. // Several *Engliſhmen*, therefore, who reſided in a country, every part of which abounds in objects of curious and uſeful ſpeculation, concurred in opinion, that a Society inſtituted at *Calcutta*, on the plan of thoſe eſtabliſhed in the principal cities of *Europe*, might poſſibly be the means of concentrating all the valuable knowledge which might occaſionally be attained in *Aſia*; or of preſerving at leaſt many little tracts and eſſays, the writers of which might

not think them of ſufficient importance for ſeparate publication. The ASIATICK SOCIETY was accordingly formed on the 15th of *January*, 1784, by thoſe Gentlemen whoſe names are diſtinguiſhed by aſteriſks in the Liſt of Members at the end of this book; and ample materials have already been collected for two large volumes, on a variety of new and intereſting ſubjects. By this Publication the Inſtitution may be conſidered as having taken root; but the plant will flouriſh or fade, according as the activity or remiſſneſs of the Members and their correſpondents ſhall promote or obſtruct its growth. It will flouriſh, if naturaliſts, chemiſts, antiquaries, philologers, and men of ſcience, in different parts of *Aſia*, will commit their obſervations to writing, and ſend them to the Preſident or the Secretary at *Calcutta*; it will languiſh, if ſuch communications ſhall be long intermitted; and it will die away, if they ſhall entirely ceaſe: for it is morally impoſſible that a few men, whatever be their zeal, who have great public duties to diſcharge, and difficult private ſtudies connected with thoſe duties, can ſupport ſuch an eſtabliſhment without the moſt aſſiduous and eager auxiliaries.

Before we proceed to give a ſhort hiſtory of the inſtitution, it may be proper to declare, that the Society will paſs no deciſion, in their *collective* capacity, on any point of literature or philoſophy; but that the writers of ſuch diſſertations, as they ſhall think worthy to be publiſhed from time to time, muſt hold themſelves individually reſponſible for their own opinions; a declaration which is conformable, we believe, to the practice of ſimilar Societies in *Europe*.

It having been reſolved to follow, as nearly as poſſible, the plan of the *Royal Society at London*, of which the *King* is *Patron*, it was agreed, at the firſt regular meeting, that the following Letter ſhould be ſent to the Governor-General and Council, as the *Executive Power* in the Company's territories: and their anſwer, which is alſo ſubjoined, was received in the courſe of the next month.

To

To the Honourable WARREN HASTINGS, Esq.
Governor-General, Preſident;
EDWARD WHELER, JOHN MACPHERSON,
And JOHN STABLES, Esquires,
Members of the Council of Fort William, *in* Bengal.

Honourable Sir and Gentlemen,

A SOCIETY, of which we are Members, having been inſtituted for the Purpoſe of enquiring into the Hiſtory, Civil and Natural, the Antiquities, Arts, Sciences, and Literature of *Aſia*, we are deſirous that you will honour us with accepting the Title of our *Patrons*, and requeſt you to conſider this Application as a Token of the great Reſpect with which we are,

Honourable Sir and Gentlemen,

Your moſt obedient and moſt humble Servants,

JOHN HYDE,
WILLIAM JONES,
JOHN CARNAC,
DAVID ANDERSON,
WILLIAM CHAMBERS
FRANCIS GLADWIN,
JONATHAN DUNCAN,
THOMAS LAW,
CHARLES WILKINS,
JOHN DAVID PATERSON,
CHARLES CHAPMAN,
CHARLES HAMILTON,
GEORGE HILARO BARLOW.

Calcutta, *January* 22, 1784.

THE

THE ANSWER.

GENTLEMEN,

WE very much approve and applaud your endeavours to promote the extenſion of knowledge by the means which your local advantages afford you in a degree, perhaps, exceeding thoſe of any part of the *Globe*; and we derive great hopes of your attainment of ſo important an end, from our perſonal knowledge of the abilities and talents of the Gentlemen whoſe names we read in the ſubſcription to your addreſs.

We accept the title you have been deſirous of conferring upon us of *Patrons* to your Society, and ſhall be happy to avail ourſelves of any occaſion that may occur of contributing to its ſucceſs.

We are, GENTLEMEN,

Your moſt obedient humble Servants,

WARREN HASTINGS,
EDWARD WHELER,
JOHN MACPHERSON,
JOHN STABLES.

Mr. HASTINGS *therefore appeared, as Governor-General, among the Patrons of the new Society; but he ſeemed, in his private ſtation, as the firſt liberal promoter of uſeful knowledge in* Bengal, *and, eſpecially as the great encourager of* Perſian *and* Sanſcrit *literature, to deſerve a particular mark of diſtinction; and he was accordingly requeſted, in a ſhort letter, to accept the title of* Preſident. *It was, indeed, much doubted whether he would accept any office, the duties of which he could not have leiſure to fulfil; but an offer of the honorary title was intended as a tribute of reſpect, which the occaſion ſeemed to demand, and which could not have been omitted without an appearance of inattention to his diſtinguiſhed merit. His anſwer is alſo annexed.*

GENTLEMEN,

I AM highly ſenſible of the honour which you have been pleaſed to confer upon me, in nominating me to be the Preſident of your Society; and I hope you will both admit and approve the motives which impel me to decline it.

From an early conviction of the utility of the Inſtitution, it was my anxious wiſh that I might be, by whatever means, inſtrumental in promoting the ſucceſs of it; but not in the mode which you have propoſed, which, I fear, would rather prove, if of any effect, an incumbrance on it.

I have not the leiſure requiſite to diſcharge the functions of ſuch a ſtation: nor, if I did poſſeſs it, would it be conſiſtent with the pride which every man may be allowed

allowed to avow in the purſuit or ſupport of the objects of his perſonal credit, to accept the firſt ſtation in a department, in which the ſuperior talents of my immediate followers in it would ſhine with a luſtre, from which mine muſt ſuffer much in the compariſon; and to ſtand in ſo conſpicuous a point of view, the only ineffective member of a body which is yet in its infancy, and compoſed of members with whoſe abilities I am, and have long been, in the habits of intimate communication, and know them to be all eminently qualified to fill their reſpective parts in it.

On theſe grounds I requeſt your permiſſion to decline the offer which you have done me the honour to make to me, and to yield my pretenſions to the Gentleman whoſe genius planned the Inſtitution, and is moſt capable of conducting it to the attainment of the great and ſplendid purpoſes of its formation.

I at the ſame time earneſtly ſolicit your acceptance of ſervices in any way in which they can be, and I hope that they may be, rendered uſeful to your Reſearches.

I have the honour to be, GENTLEMEN,

Your moſt obedient and moſt humble Servant,

WARREN HASTINGS.

Fort William,
January 30, 1784.

On the receipt of this Letter, SIR WILLIAM JONES *was nominated Preſident of the Society; and, at their next meeting, he delivered the following Diſcourſe.*

DISCOURSE

ON THE

INSTITUTION OF A SOCIETY

FOR INQUIRING INTO THE

HISTORY, CIVIL AND NATURAL,

THE

ANTIQUITIES, ARTS, SCIENCES, AND LITERATURE,

OF

ASIA.

BY THE PRESIDENT.

Gentlemen,

WHEN I was at ſea laſt Auguſt, on my voyage to this country, which I had long and ardently deſired to viſit, I found one evening, on inſpecting the obſervations of the day, that *India* lay before us, and *Perſia* on our left, whilſt a breeze from *Arabia* blew nearly on our ſtern. A ſituation ſo pleaſing in itſelf, and to me ſo new, could not fail to awaken a train of reflections in a mind which had early been accuſtomed to contemplate with delight, the eventful hiſtories and agreeable fictions of this eaſtern world. It gave me inexpreſſible pleaſure to find myſelf in the midſt of ſo noble an amphitheatre, almoſt encircled by the vaſt regions of *Aſia*, which has ever been

been eſteemed the nurſe of ſciences, the inventreſs of delightful and uſeful arts, the ſcene of glorious actions, fertile in the productions of human genius, abounding in natural wonders, and infinitely diverſified in the forms of religion and government, in the laws, manners, cuſtoms, and languages, as well as in the features and complexions of men. I could not help remarking how important and extenſive a field was yet unexplored, and how many ſolid advantages unimproved: and when I conſidered, with pain, that, in this fluctuating, imperfect, and limited condition of life, ſuch inquiries and improvements could only be made by the united efforts of many, who are not eaſily brought, without ſome preſſing inducement, or ſtrong impulſe, to converge in a common point, I conſoled myſelf with a hope, founded on opinions, which it might have the appearance of flattery to mention, that, if in any country, or community, ſuch an union could be effected, it was among my countrymen in *Bengal;* with ſome of whom I already had, and with moſt was deſirous of having, the pleaſure of being intimately acquainted.

You have realized that hope, Gentlemen, and even anticipated a declaration of my wiſhes, by your alacrity in laying the foundation of a Society for inquiring into the Hiſtory and Antiquities, the Natural Productions, Arts, Sciences, and Literature, of *Aſia.* I may confidently foretel, that an inſtitution ſo likely to afford entertainment, and convey knowledge, to mankind, will advance to maturity by ſlow, yet certain, degrees; as the Royal Society, which, at firſt, was only a meeting

of a few literary friends at *Oxford*, roſe gradually to that ſplendid zenith, at which a *Halley* was their ſecretary, and a *Newton* their preſident.

Although it is my humble opinion, that, in order to enſure our ſucceſs and permanence, we muſt keep a middle courſe, between a languid remiſſneſs and an over zealous activity, and that the tree, which you have auſpicioully planted, will produce fairer bloſſoms, and more exquiſite fruit, if it be not at firſt expoſed to too great a glare of ſunſhine, yet I take the liberty of ſubmitting to your conſideration, a few general ideas on the plan of your Society; aſſuring you, that, whether you reject or approve them, your correction will give me both pleaſure and inſtruction, as your flattering attentions have already conferred on me the higheſt honour.

It is your deſign, I conceive, to take an ample ſpace for your learned inveſtigations, bounding them only by the geographical limits of *Aſia*; ſo that conſidering *Hinduſtan* as a centre, and turning your eyes in idea to the north, you have on your right many important kingdoms in the eaſtern peninſula; the ancient and wonderful empire of *China*, with all her *Tartarian* dependencies; and that of *Japan*, with the cluſter of precious iſlands, in which many ſingular curioſities have too long been concealed. Before you lies that prodigious chain of mountains which formerly, perhaps, were a barrier againſt the violence of the ſea; and beyond them the very intereſting country of *Tibet*, and the vaſt regions of *Tartary*, from which, as from

from the *Trojan* horſe of the poets, have iſſued ſo many conſummate warriors, whoſe domain has extended at leaſt from the banks of the *Iliſſus* to the mouths of the *Ganges*. On your left are the beautiful and celebrated provinces of *Iran*, or *Perſia*; the unmeaſured, and, perhaps, unmeaſurable, deſerts of *Arabia*; and the once flouriſhing kingdom of *Yemen*, with the pleaſant iſles that the *Arabs* have ſubdued or colonized: and farther weſtward, the *Aſiatick* dominions of the *Turkiſh* ſultans, whoſe moon ſeems approaching rapidly to its wane. By this great circumference the field of your uſeful reſearches will be incloſed: but, ſince *Egypt* had unqueſtionably an old connexion with this country, if not with *China*; ſince the language and literature of the *Abyſſinians* bear a manifeſt affinity to thoſe of *Aſia*; ſince the *Arabian* arms prevailed along the *African* coaſt of the *Mediterranean*, and even erected a powerful dynaſty on the continent of *Europe*; you may not be diſpleaſed occaſionally to follow the ſtreams of *Aſiatick* learning a little beyond its natural boundary. And if it be neceſſary, or convenient, that a ſhort name or epithet be given to our Society, in order to diſtinguiſh it in the world, that of *Aſiatick* appears both claſſical and proper, whether we conſider the place or the object of the inſtitution; and preferable to *Oriental*, which is, in truth, a word merely relative, and though commonly uſed in *Europe*, conveys no very diſtinct idea.

If now it be aſked, what are the intended objects of our inquiries within theſe ſpacious limits, we anſwer, MAN and NATURE; whatever is performed

formed by the one, or produced by the other. Human knowledge has been elegantly analyſed according to the three great faculties of the mind, *memory*, *reaſon*, and *imagination*, which we conſtantly find employed in arranging and retaining, comparing and diſtinguiſhing, combining and diverſifying, the ideas which we receive through our ſenſes, or acquire by reflection; hence the three main branches of learning are *hiſtory*, *ſcience*, and *art*. The firſt comprehends either an account of natural productions, or the genuine records of empires and ſtates; the ſecond embraces the whole circle of pure and mixed mathematics, together with ethicks and law, as far as they depend on the reaſoning faculty; and the third includes all the beauties of imagery, and the charms of invention, diſplayed in modulated language, or repreſented by colour, figure, or ſound.

Agreeably to this analyſis, you will inveſtigate whatever is rare in the ſtupendous fabrick of nature; will correct the geography of *Aſia* by new obſervations and diſcoveries; will trace the annals, and even traditions, of thoſe nations, who, from time to time, have peopled or deſolated it; and will bring to light their various forms of government, with their inſtitutions civil and religious. You will examine their improvements and methods in arithmetick and geometry, in trigonometry, menſuration, mechanicks, opticks, aſtronomy, and general phyſicks; their ſyſtems of morality, grammar, rhetorick, and dialectick; their ſkill in chirurgery and medicine; and their advancement, whatever it may be, in anatomy and chemiſtry. To this you will add reſearches into their agricul-

ture,

ture, manufactures, trade; and, whilſt you inquire with pleaſure into their muſick, architecture, painting, and poetry, will not neglect thoſe inferior arts by which the comforts, and even elegancies, of ſocial life are ſupplied or improved. You may obſerve that I have omitted their languages, the diverſity and difficulty of which are a ſad obſtacle to the progreſs of uſeful knowledge; but I have ever conſidered languages as the mere inſtruments of real learning, and think them improperly confounded with learning itſelf: the attainment of them is, however, indiſpenſibly neceſſary; and if to the *Perſian*, *Armenian*, *Turkiſh*, and *Arabick*, could be added not only the *Sanſcrit*, the treaſures of which we may now hope to ſee unlocked, but even the *Chineſe*, *Tartarian*, *Japaneſe*, and the various inſular dialects, an immenſe mine would then be open, in which we might labour with equal delight and advantage.

Having ſubmitted to you theſe imperfect thoughts on the *limits* and *objects* of our future Society, I requeſt your permiſſion to add a few hints on the *conduct* of it in its preſent immature ſtate.

LUCIAN begins one of his ſatirical pieces againſt hiſtorians with declaring, that the only true propoſition in his work was, that it ſhould contain nothing true; and, perhaps, it may be adviſable at firſt, in order to prevent any difference of ſentiment on particular points not immediately before us, to eſtabliſh but one rule, namely, to have no rules at all. This only I mean, that in the infancy of any ſociety, there ought to be no confinement,

finement, no trouble, no expenſe, no unneceſſary formality. Let us, if you pleaſe, for the preſent, have weekly evening meetings in this hall, for the purpoſe of hearing original papers read on ſuch ſubjects as fall within the circle of our inquiries. Let all curious and learned men be invited to ſend their tracts to our ſecretary, for which they ought immediately to receive our thanks: and if, towards the end of each year, we ſhould be ſupplied with a ſufficiency of valuable materials to fill a volume, let us preſent our *Aſiatick* miſcellany to the literary world, who have derived ſo much pleaſure and information from the agreeable work of *Kæmpfer*, than which we can ſcarce propoſe a better model, that they will accept with eagerneſs any freſh entertainment of the ſame kind. You will not, perhaps, be diſpoſed to admit mere tranſlations of conſiderable length, except of ſuch unpubliſhed eſſays or treatiſes as may be tranſmitted to us by native authors: but whether you will enrol, as members, any number of learned natives, you will hereafter decide, with many other queſtions as they happen to ariſe: and you will think, I preſume, that all queſtions ſhould be decided, on a ballot, by a majority of two thirds; and that nine members ſhould be requiſite to conſtitute a board for ſuch deciſions. Theſe points, however, and all others, I ſubmit entirely, Gentlemen, to your determination, having neither wiſh nor pretenſion to claim any more than my ſingle right of ſuffrage. One thing only, as eſſential to your dignity, I recommend with earneſtneſs, on no account to admit a new member, who has not expreſſed a voluntary deſire to become ſo; and in that caſe you will not require, I ſuppoſe, any other qualification

qualification than a love of knowledge, and a zeal for the promotion of it.

Your inſtitution, I am perſuaded, will ripen of itſelf; and your meetings will be amply ſupplied with intereſting and amuſing papers, as ſoon as the object of your inquiries ſhall be generally known. There are (it may not be delicate to name them, but there are) many from whoſe important ſtudies I cannot but conceive high expectations. And, as far as mere labour will avail, I ſincerely promiſe, that, if, in my allotted ſphere of juriſprudence, or in any intellectual excurſion that I may have leiſure to make, I ſhould be ſo fortunate as to collect, by accident, either fruits or flowers, which may ſeem valuable or pleaſing, I ſhall offer my humble *Nezr* to your Society with as much reſpectful zeal as to the greateſt potentate on earth.

The System of INDIAN ARABIAN and PERSIAN LETTERS

Soft and hard Breathings

a e ha hha

Vowels Diphthongs and Semivowels

ă ā	aà	e	è	ya
i	ì	o	ò	wa
u	ù	ai	au	ra
ṛi	ṛī	ḷri	ḷrī	la
â â	ê ê	î î	û û	á â

Consonants

ca	c'ha		g'ha	
ka	kha	ga	gha	na
sa	sha	za	zha	śa
ta	ťha	ďa	ďha / ďha	ńa
ta	t'ha / tha	da	d'ha / dha	na
pa	p'ha / fa	ba	p'ha / va	ma

Compounds

cha	ch,ha	Ja	Jha	ṅya
ża	ża	ża	csha	jüya

TRANSACTIONS

OF THE

ASIATICK SOCIETY.

I.

A DISSERTATION

ON THE

ORTHOGRAPHY OF ASIATICK WORDS IN ROMAN LETTERS.

BY THE

PRESIDENT.

EVERY man, who has occaſion to compoſe tracts on *Aſiatick* literature, or to tranſlate from the *Aſiatick* languages, muſt always find it convenient, and ſometimes neceſſary, to expreſs *Arabian*, *Indian* and *Perſian* words, or ſentences, in the characters generally uſed among *Europeans*; and almoſt every writer in thoſe circumſtances, has a method of notation peculiar to himſelf: but none has yet appeared in the form of a complete ſyſtem, ſo that each original ſound may be rendered invariably by one appropriated ſymbol, conformably to the natural order of articu-

lation, and with a due regard to the primitive power of the *Roman* alphabet, which modern *Europe* has in general adopted. A want of attention to this object has occaſioned great confuſion in hiſtory and geography. The ancient *Greeks*, who made a voluntary ſacrifice of truth to the delicacy of their ears, appear to have altered, by deſign, almoſt all the oriental names which they introduced into their elegant, but romantic, hiſtories: and even their more modern geographers, who were too vain, perhaps, of their own language to learn any other, have ſo ſtrangely diſguiſed the proper appellations of countries, cities, and rivers, in *Aſia*, that, without the guidance of the ſagacious and indefatigable Monſieur D'Anville, it would have been as troubleſome to follow Alexander through the *Panjâb* on the Ptolemaick map of Agathodæmon, as actually to travel over the ſame country in its preſent ſtate of rudeneſs and diſorder. They had an unwarrantable method of moulding foreign names to a *Grecian* form, and giving them a reſemblance to ſome derivative word in their own tongue. Thus they changed the *Gogra* into *Agoranis*, or *a river of the aſſembly*; *Uchab* into *Oxydracæ*, or *ſharp-ſighted*; and *Renas* into *Aornos*, or *a rock inacceſſible to birds*; whence their poets, who delighted in wonders, embelliſhed their works with new images, diſtinguiſhing regions and fortreſſes by properties which exiſted only in imagination. If we have leſs livelineſs of fancy than the ancients, we have more accuracy, more love of truth, and, perhaps, more ſolidity of judgment: and if our works ſhall afford leſs delight to thoſe in reſpect of whom we ſhall be ancients, it may be ſaid, without preſumption, that we ſhall give them more correct information on the hiſtory and geography of this Eaſtern World; ſince no man can perfectly deſcribe a country who is unacquainted with the language of it. The learned and entertaining work of M. D'Herbelot, which profeſſes to interpret and elucidate the names of perſons and places, and the titles of books, abounds alſo in citations from the beſt writers of *Arabia* and

and *Perſia:* yet, though his orthography will be found leſs defective than that of other writers on ſimilar ſubjects, without excepting the illuſtrious Prince KANTEMIR, ſtill it requires more than a moderate knowledge of *Perſian*, *Arabick*, and *Turkiſh*, to comprehend all the characters quoted by him in *European* characters; one inſtance of which I cannot forbear giving. In the account of *Ibnu Zaidùn*, a celebrated *Andaluſian* poet, the firſt couplet of an elegy in *Arabick* is praiſed for its elegance, and expreſſed thus in *Roman* letters:

Iekad heïn tenagikom dhamairna;
Iacdha âlaïna alaſſa laula taſſina.

"The time," adds the tranſlator, "will ſoon come, "when you will deliver us from all our cares: the re- "medy is aſſured, provided we have a little patience." When Dr. HUNT, of *Oxford*, whom I am bound to name with gratitude and veneration, together with two or three others, attempted, at my requeſt, to write the ſame diſtich in *Arabian* characters, they all wrote it differently, and all, in my preſent opinion, erroneouſly. I was then a very young ſtudent, and could not eaſily have procured *Ibnu Zaidùn's* works, which are, no doubt, preſerved in the *Bodley* Library, but which have not ſince fallen in my way. This admired couplet, therefore, I have never ſeen in the original characters, and confeſs myſelf at a loſs to render them with certainty. Both verſes are written by *D'Herbelot* without attention to the grammatical points: that is, in a form which no learned *Arab* would give them in recitation. But, although the French verſion be palpably erroneous, it is by no means eaſy to correct the error. If *álásà*, or a *remedy*, be the true reading, the negative particle muſt be abſurd; ſince *taáſſaínà* ſignifies *we are patient*, and not *we deſpair:* but if *álâſay*, or *affliction*, be the proper word, ſome obſcurity muſt ariſe from the

verb, with which it agrees. On the whole, I guefs, that the diſtich ſhould thus be written:

يَكَادُ حِيْنَ تُنَاجِيكُمْ ضَمَائِرُنَا
يَقْضِي عَلَيْنَا الْأَسَى لَوْلَا تَأَسِّينَا

Yecádu hhína tunájícum d'emáïrunà
Yakdì âlainà 'láſay lau là taáſſínà.

"When our boſoms impart their ſecrets to you, an-
"guiſh would almoſt fix our doom, if we were not
"mutually to conſole ourſelves."

The principal verbs may have a future ſenſe, and the laſt word may admit of a different interpretation. Dr. HUNT, I remember, had found in GIGGEIUS the word *dhemáyer*, which he conceived to be in the original. After all, the rhyme ſeems imperfect, and the meaſure irregular. Now I aſk whether ſuch perplexities could have ariſen, if *D'Herbelot*, or his editor, had formed a regular ſyſtem of expreſſing *Arabick* in *Roman* characters, and had apprized his readers of it in his introductory diſſertation?

If a further proof be required, that ſuch a ſyſtem will be uſeful to the learned, and eſſential to the ſtudent, let me remark, that a learner of *Perſian*, who ſhould read in our beſt hiſtories, the life of Sultan AZIM, and wiſh to write his name in *Arabick* letters, might expreſs it *thirty-nine* different ways, and be wrong at laſt. The word ſhould be written *Aâžem*, with three points on the firſt conſonant.

There are two general modes of exhibiting *Aſiatick* words in our own letters: they are founded on principles nearly oppoſite; but each of them has its advantages, and

and each has been recommended by reſpectable authorities. The firſt profeſſes to regard chiefly the *pronunciation* of the words intended to be expreſſed; and this method, as far as it can be purſued, is unqueſtionably uſeful: but new ſounds are very inadequately preſented to a ſenſe not formed to receive them; and the reader muſt, in the end, be left to pronounce many letters and ſyllables precariouſly; beſides, that by this mode of orthography, all grammatical analogy is deſtroyed, ſimple ſounds are repreſented by double characters, vowels of one denomination ſtand for thoſe of another; and poſſibly, with all our labour, we perpetuate a provincial or inelegant pronunciation. All theſe objections may be made to the uſual way of writing *Kummerbund*, in which neither the letters, nor the true ſound of them, are preſerved; while *Kemerbend*, or *Cemerbend*, as an ancient *Briton* would write it, clearly exhibits both the original characters, and the *Perſian* pronunciation of them. To ſet this point in a ſtrong light, we need only ſuppoſe that the *French* had adopted a ſyſtem of letters wholly different from ours, and of which we had no types in our printing-houſes: let us conceive an *Engliſhman*, acquainted with their language, to be pleaſed with MALHERBE's well-known imitation of *Horace*, and deſirous of quoting it in ſome piece of criticiſm: he would read it thus:

'La mort a des rigueurs à nulle autre pareilles:
'On a beau la prier:
'La cruelle qu'elle eſt ſe bouche les oreilles,
'Et nous laiſſe crier.

'Le pauvre en ſa cabane, ou le chaume le couvre,
'Eſt ſujet à ſes loix,
'Et la garde, qui veille aux barrieres du *Louvre*,
'N'en défend pas nos rois!'

Would he then expreſs theſe eight verſes, in *Roman* characters, exactly as the *French* themſelves in fact expreſs them; or would he decorate his compoſition with a paſſage more reſembling the dialect of ſavages, than that of a poliſhed nation? His pronunciation, good or bad, would, perhaps, be thus repreſented:

'Law more aw day reegyewrs aw nool otruh parellyuh,
'Onne aw bo law preeay:
'Law crooellyuh kellay ſuh booſhuh lays orellyuh,
'Ay noo layſuh creeay.

'Luh povre ong ſaw cawbawn oo luh chomuh luh
'coovruh,
'Ay ſoozyet aw ſay lwaw,
'Aylaw gawrduh keevelly ò bawryayruh dyoo *Loovruh*,
'Nong dayſong paw no rwaw!'

The ſecond ſyſtem of *Aſiatick* orthography conſiſts in ſcrupulouſly rendering letter for letter, without any particular care to preſerve the pronunciation; and, as long as this mode proceeds by unvaried rules, it ſeems clearly entitled to the preference.

For the firſt method of writing *Perſian* words, the warmeſt advocate, among my acquaintance, was the late Major Davy, a member of our Society, and a man of parts, whom the world loſt prematurely, at a time when he was meditating a literary retirement, and hoping to paſs the remainder of his life in domeſtick happineſs, and in the cultivation of his very uſeful talents. He valued himſelf particularly on his pronunciation of the *Perſian* language, and of his new way of exhibiting it in our characters, which he inſtructed the learned and amiable editor of his *Inſtitutes of Timour*, at *Oxford*,

to retain with minute attention throughout his work. Where he had acquired his refined articulation of the *Perſian* I never was informed; but it is evident that he ſpells moſt proper names in a manner which a native of *Perſia*, who could read our letters, would be unable to comprehend. For inſtance; that the capital of *Azarbáíjàn* is now called *Tabríz*, I know from the mouth of a perſon born in that city, as well as from other *Iranians*; and that it was ſo called ſixteen hundred years ago, we all know from the Geography of *Ptolemy*; yet Major DAVY always wrote it *Tubburaze*, and inſiſted that it ſhould thus be pronounced. Whether the natives of *Semerkand*, or *Samarkand*, who probably ſpeak the dialect of *Soghd* with a *Turanian* pronunciation, call their birth-place, as DAVY ſpelled it, *Summurkund*, I have yet to learn; but I cannot believe it; and am convinced, that the former mode of writing the word, expreſſes both the letters,' and the ſound of them, better than any other combination of characters. His method, therefore, has every defect; ſince it renders neither the original elements of words, nor the ſounds repreſented by them in *Perſia*, where alone we muſt ſeek for genuine *Perſian*, as for *French* in *France*, and for *Italian* in *Italy*.

The ſecond method has found two able ſupporters in Mr. HALHED and Mr. WILKINS; to the firſt of whom the public is indebted for a perſpicuous and ample grammar of the *Bengal* language; and to the ſecond for more advantages in *Indian* literature, than *Europe* or *India* can ever ſufficiently acknowledge.

Mr. HALHED having juſtly remarked, 'that the two 'greateſt defects in the orthography of any language, 'are the application of the ſame letter to ſeveral dif-'ferent ſounds, and of different letters to the ſame 'ſound,' truly pronounces them both to be 'ſo com-'mon in *Engliſh*, that he was exceedingly embarraſſed 'in the choice of letters to expreſs the ſound of the

'*Bengal* vowels, and was at laſt by no means ſatisfied 'with his own ſelection.' If any thing diſſatisfies me, in his clear and accurate ſyſtem, it is the uſe of *double* letters for the long vowels, (which might, however, be juſtified,) and the frequent intermixture of *Italick* with *Roman* letters in the ſame word; which, both in writing and printing, muſt be very inconvenient. Perhaps it may be added, that his diphthongs are not expreſſed analogouſly to the ſounds of which they are compoſed.

The ſyſtem of Mr. WILKINS has been equally well conſidered; and Mr. HALHED himſelf has, indeed, adopted it in his preface to the *Compilation of Hindu Laws*. It principally conſiſts of double letters, to ſignify our third and fifth vowels; and of the common proſodial marks, to aſcertain their brevity or their length: but thoſe marks are ſo generally appropriated to books of proſody, that they never fail to convey an idea of metre. Nor, if *either* proſodial ſign were adopted, would *both* be neceſſary; ſince the omiſſion of a long mark would evidently denote the ſhortneſs of the unmarked vowel, or converſely. On the whole, I cannot but approve this notation for *Sanſcrit* words, yet require ſomething more univerſally expreſſive of *Aſiatick* letters. As it is perfect, however, in its kind, and will appear in the works of its learned inventor, I ſhall annex, among the examples, four diſtichs from the *Bhágawat*, expreſſed both in his method and mine*. A tranſlation of them will be produced on another occaſion. But, in order to render this tract as complete as poſſible, a fuller ſpecimen of *Sanſcrit* will be ſubjoined with the original, printed in the characters of *Bengal*, into which the *Bráhmans* of that province tranſpoſe all their books, few of them being able to read the *Dévanágari* letters; ſo far has their indolence prevailed over their piety!

* Plate IV.

Let

Let me now proceed, not preſcribing rules for others, but explaining thoſe which I have preſcribed for myſelf, to unfold my own ſyſtem, the convenience of which has been proved by careful obſervation and long experience.

It would be ſuperfluous to diſcourſe on the organs of ſpeech, which have been a thouſand times diſſected, and as often deſcribed, by muſicians or anatomiſts; and the ſeveral powers of which every man may perceive, either by the touch or by ſight, if he will attentively obſerve another perſon pronouncing the different claſſes of letters, or pronounce them himſelf diſtinctly before a mirror: but a ſhort analyſis of articulate ſounds may be proper to introduce an examination of every ſeparate ſymbol.

All things abound with errour, as the old ſearchers for truth remarked with deſpondence: but it is really deplorable that our firſt ſtep from total ignorance ſhould be into groſs inaccuracy; and that we ſhould begin our education in *England* with learning to read *the five vowels*, *two* of which, as we are taught to pronounce them, are clearly diphthongs. There are, indeed, five ſimple vocal ſounds in our language, as in that of *Rome*, which occur in the words *an innocent bull*, though not preciſely in their natural order; for we have retained the true arrangement of the letters, while we capriciouſly diſarrange them in pronunciation; ſo that our eyes are ſatisfied, and our ears diſappointed. The primary elements of articulation are the *ſoft* and *hard breathings*, the *ſpiritus lenis* and *ſpiritus aſper* of the *Latin* grammarians. If the lips be opened ever ſo little, the breath ſuffered gently to paſs through them, and the feebleſt utterance attempted, a ſound is formed of ſo ſimple a nature, that, when lengthened, it continues nearly the ſame, except that, by the leaſt acuteneſs in the voice, it becomes a cry, and is probably the firſt ſound uttered by infants: but if, while this element is articulated,

articulated, the breath be forced with an effort through the lips, we form an *aſpirate*, more or leſs harſh in proportion to the force exerted. When, in pronouncing the ſimple vowel, we open our lips wider, we expreſs a ſound completely articulated, which moſt nations have agreed to place the *firſt* in their ſymbolical ſyſtems: by opening them wider ſtill, with the corners of them a little drawn back, we give birth to the *ſecond* of the *Roman* vowels; and by a large aperture, with a farther inflexion of the lips, and a higher elevation of the tongue, we utter the *third* of them. By purſing up our lips in the leaſt degree, we convert the ſimple element into another ſound, of the ſame nature with the *firſt* vowel, and eaſily confounded with it in a broad pronunciation: when this new ſound is lengthened, it approaches very nearly to the *fourth* vowel, which we form by a bolder and ſtronger rotundity of the mouth: a farther contraction of it produces the *fifth* vowel, which, in its elongation, almoſt cloſes the lips, a ſmall paſſage only being left for the breath. Theſe are all ſhort vowels: and if an *Italian* were to read the words *an innocent bull*, he would give the ſound of each correſponding long vowel, as in the monoſyllables of his own language, *ſà, ſi, ſò, ſe, ſu*. Between theſe ten vowels are numberleſs gradations, and nice inflexions, which uſe only can teach; and, by the compoſition of them all, might be formed an hundred diphthongs, and a thouſand triphthongs; many of which are found in *Italian*, and were probably articulated by the *Greeks*; but we have only occaſion in this tract for two diphthongs, which are compounded of the *firſt* vowel with the *third*, and with the *fifth*, and ſhould be expreſſed by their conſtituent letters. As to thoſe vocal compounds which begin with the *third* and *fifth* ſhort vowels, they are generally, and not inconveniently, rendered by diſtinct characters, which are improperly arranged among the conſonants. The tongue, which aſſiſts in forming ſome of the vowels, is the principal inſtrument in articulating two liquid ſounds, which have ſomething of a local nature: one by

by ſtriking the roots of the upper teeth, while the breath paſſes gently through the lips; another, by an inflexion upwards, with a tremulous motion; and theſe two liquids coaleſce with ſuch eaſe, that a mixed letter, uſed in ſome languages, may be formed by the firſt of them followed by the ſecond. When the breath is obſtructed by the preſſure of the tongue, and forced between the teeth on each ſide of it, a liquid is formed peculiar to the *Britiſh* dialect of the *Celtick*.

We may now conſider in the ſame order, beginning with the root of the tongue, and ending with the perfect cloſe of the lips, thoſe leſs muſical ſounds, which require the aid of a *vowel*, or at leaſt of the *ſimple breathing*, to be fully articulated: and it may here be premiſed, that the *harſh breathing* diſtinctly pronounced after each of theſe *conſonants*, as they are named by grammarians, conſtitutes its proper *aſpirate*.

By the aſſiſtance of the tongue and the palate, are produced two congenial ſounds, differing only as *hard* and *ſoft*; and theſe two may be formed ſtill deeper in the throat, ſo as to imitate, with a long vowel after them, the voice of a raven: but if, while they are uttered, the breath be harſhly protruded, two analogous articulations are heard, the ſecond of which ſeems to characterize the pronunciation of the *Arabs*; while the *naſal* ſound, very common among the *Perſians* and *Indians*, may be conſidered as the *ſoft palatine*, with part of the breath paſſing through the noſe; which organ would by itſelf rather produce a *vocal* ſound, common alſo in *Arabia*, and not unlike the cry of a young antelope, and ſome other quadrupeds.

Next come different claſſes of *dentals*; and among the firſt of them ſhould be placed the *ſibilants*, which moſt nations expreſs by an *indented* figure. Each of the

the *dental* ſounds is hard or ſoft, ſharp or obtuſe; and by thruſting the tip of the tongue between the teeth, we form two ſounds exceedingly common in *Arabick* and *Engliſh*, but changed into liſping ſibilants by the *Perſians* and *French*; while they, on the other hand, have a ſound unknown to the *Arabs*, and uncommon in our language, though it occurs in ſome words, by the compoſition of the hard ſibilant with our laſt vowel pronounced as a diphthong. The liquid *naſal* follows theſe, being formed by the tongue and roots of the teeth, with a little aſſiſtance from the other organ: and we muſt particularly remember, when we attend to the pronunciation of *Indian* dialects, that moſt ſounds of this claſs are varied in a ſingular manner by turning the tongue upwards, and almoſt bending it back towards the palate, ſo as to exclude them nearly from the order, but not from the analogy, of dentals.

The *labials* form the laſt ſeries, moſt of which are pronounced by the appulſe of the lips on each other, or on the teeth, and one of them by their perfect cloſe. The letters by which they are denoted, repreſent, in moſt alphabets, the curvature of one lip, or of both: and *a natural character* for all articulate ſounds might eaſily be agreed on, if nations would agree on any thing generally beneficial, by delineating the ſeveral organs of ſpeech in the act of articulation, and ſelecting from each a diſtinct and elegant outline. A perfect language would be that in which every idea capable of entering the human mind, might be neatly and emphatically expreſſed by one ſpecifick word; ſimple, if the idea were ſimple; complex, if complex: and on the ſame principle, a perfect ſyſtem of letters ought to contain one ſpecifick ſymbol for every ſound uſed in pronouncing the language to which they belonged. In this reſpect the old *Perſian*, or *Zend*, approaches to perfection: but the *Arabian* alphabet, which all *Mohammedan* nations have inconſiderately adopted, appears to me ſo complete for the purpoſe of writing *Arabick*, that not a letter could

अ आ इ ई उ ऊ ऋ ॠ

ऌ ॡ ए ऐ ओ औ अं अः

क का कि की कु कू कृ कॄ

कॢ कॣ के कै को कौ कं कः

क ख ग घ ङ च छ ज झ ञ

ट ठ ड ढ ण त थ द ध न

प फ ब भ म य र ल व श

ष स ह क्ष ज्ञ

could be added, or taken away, without manifeſt inconvenience; and the ſame may indubitably be ſaid of the *Dévanágarì* ſyſtem; which, as it is more naturally arranged than any other, ſhall here be the ſtandard of my particular obſervations on *Aſiatick* letters. Our *Engliſh* alphabet and orthography are diſgracefully, and almoſt ridiculouſly, imperfect; and it would be impoſſible to expreſs either *Indian*, *Perſian* or *Arabian* words in *Roman* characters, as we are abſurdly taught to pronounce them: but a mixture of new characters would be inconvenient; and, by the help of the diacritical marks uſed by the *French*, with a few of thoſe adopted in our own treatiſes on *fluxions*, we may apply our preſent alphabet ſo happily to the notations of all *Aſiatick* languages, as to equal the *Dévanágarì* itſelf in preciſion and clearneſs; and ſo regularly, that any one, who knew the original letters, might rapidly and unerringly tranſpoſe into them all the proper names, appellatives, or cited paſſages, occurring in tracts of *Aſiatick* literature.

अ

This is the ſimpleſt element of articulation, or firſt *vocal* ſound, concerning which enough has been ſaid. The word *America* begins and ends with it; and its proper ſymbol therefore is A; though it may be often very conveniently expreſſed by E, for reaſons which I ſhall preſently offer. In our own anomalous language, we commonly mark this elementary ſound by our *fifth* vowel, but ſometimes expreſs it by a ſtrange variety both of vowels and diphthongs; as in the phraſe, *a mother bird flutters over her young*; an irregularity which no regard to the derivation of words, or to blind cuſtom, can in any degree juſtify. The *Nágarì* letter is called *Acàr*; but it is pronounced in *Bengal* like our *fourth* ſhor

ſhort vowel; and in the *weſt* of *India* like our *firſt*. In all the dialects properly *Indian*, it is conſidered as *inherent* in every conſonant; and is placed laſt in the ſyſtem of the *Tibetians*, becauſe the letters which include it are firſt explained in their ſchools. If our double conſonants were invariably connected, as in *Sanſcrit*, it would certainly be the better way to omit the ſimple element, except when it begins a word. This letter anſwers to the *fat-hhah*, or *open* ſound of the *Arabs*, and, in ſome few words, to the *Zeber* of the *Perſians*, or an acute placed *above* the letters: but this *Arabian* mark, which was ſupplied in the *Pahlavi* by a diſtinct character, is more frequently pronounced at *Iſfahán*, either like our *firſt* or our *ſecond* ſhort vowel, as in *chaſhm* and *ferzend*; and the diſtinction ſeems to depend, in general, on the nature of the conſonant which follows it. Two of our letters, therefore, are neceſſary for the complete notation of the *acàr* and *zeber*; and thus we may be able occaſionally to avoid ridiculous or offenſive equivocations in writing oriental words, and to preſerve the true pronunciation of the *Perſians*, which differs as widely from that of the *Muſlimans* in *India*, as the language of our court at *St. James's* differs from that of the ruſticks in the *Gentle Shepherd*.

आ

When the *firſt* vowel, as the *Perſians* pronounce it in the word *bakht*, is doubled, or prolonged, as in *bákht*, it has the ſound of the ſecond *Nágarì* vowel, and of the firſt *Arabick* letter, that is, of our long vowel in *caſt*; but the *Arabs* deride the *Perſians* for their broad pronunciation of this letter, which in *Iràn* has always the ſound of our vowel in *call*, and is often ſo prolated, as to reſemble the *fourth*, and even the *fifth*, of our long vowels. Its natural mark would be the ſhort A *doubled*: but an *acute* accent in the middle of words, or a *grave* at the end of them, will be equally clear, and conform-

ا ب ت ث ج ح خ د ذ ر ز س ش ص ض ط ظ ع غ ف ق ک ل م ن و ه ی

ن ن ن

able to the practice of poliſhed nations on the continent of *Europe*. The very broad ſound of the *Arabian* letter, which they call *extended*, and which the *Perſians* extend yet more, as in the word *áſàn*, may aptly enough be repreſented by the proſodial ſign, ſince it is conſtantly long; whereas the mark *hamzhah* as conſtantly *ſhortens* the letter, and gives it the ſound of the point above or below it, as in the words *ósùl* and *Iſlàm*. The changes of this letter may perplex the learned, but his perplexity will ſoon vaniſh as he advances. In writing *Aſiatick* names, we frequently confound the broad *à* with its correſpondent ſhort vowel, which we improperly expreſs by an O: thus we write *Coſſim* for *Káſim*, in defiance of analogy and correctneſs. Our vowel in *fond* occurs but ſeldom, if ever, in *Arabian*, *Indian*, or *Perſian* words. It is placed, nevertheleſs, in the general ſyſtem, with the ſhort proſodial mark, and ſtands at the head of the vowels, becauſe it is, in truth, only a variation of the ſimple breathing.

Our *third* vowel, correctly pronounced, appears next in the *Nágarì* ſyſtem; for our *ſecond* ſhort vowel has no place in it. This vocal ſound is repreſented in *Arabick* by an acute accent *under* the letter, which at *Mecca* has almoſt invariably the ſame pronunciation; but ſince in the *Zend* a character like the *Greek E-pſilon* repreſents both our *ſecond* and *third* ſhort vowels, the *Perſians* often pronounce *zìr* like *zeber*, calling this country *Hend*, and the natives of it *Hendùs*: nevertheleſs, it will be proper to denote the *Sanſcrit icàr*, and the *Arabian caſr*, by one unaltered ſymbol, as in the words *Indra* and *Imám*.

The *third* vowel produced or lengthened, is, for the reaſon before ſuggeſted, beſt marked by an accent, either acute or grave, as in *Italian*:

Se

Se cerca, ſe dice:
L'amico dov'è?
L'amico infelice,
Riſpondi, morì!
Ah! no; sì gran duolo
Non darle per me.
Riſpondi, ma ſolo:
Piangendo partì.

It was once my practice to repreſent this long vowel by two marks, as in the words *Lebeid* and *Deiwàn*, to denote the *point* in *Arabick* as well as the letter above it: but my preſent opinion is, that *Lebìd* and *Díwàn* are more conformable to analogy, and to the *Italian* orthography, which, of all *European* ſyſtems, approaches neareſt to perfection.

ʊ

This is our *fifth* vowel; for our *fourth* ſhort one is, like our *ſecond*, rejected from the pure pronunciation of the *Sanſcrit* in the *weſt* of *India*, and at *Bánáras*; though the *Bengaleſe* retain it in the firſt *Nágarì* letter, which they call *ocàr*. To the notation of this ſound, our vowel in *full*, and the *Perſian* in *gul*, ſhould be conſtantly appropriated, ſince it is a ſimple articulation, and cannot, without impropriety, be repreſented by a double letter. It anſwers to *hu-pſilon*, and, like that, is often confounded with *iota*. Thus *muſhc* has the ſound of *miſhc* among the modern *Perſians*; as *Numpha* was pronounced *Nympha* by the *Romans*. The *damm* of the *Arabs* is, however, frequently ſounded, eſpecially in *Perſia*, like our ſhort O in *memory*; and the choice of two marks for a variable ſound is not improper in itſelf, and will ſometimes be found very convenient.

The

ঊ

The ſame lengthened, and properly expreſſed by an accent, as in the word *virtù:* it is a very long vowel in *Perſian*, ſo as nearly to treble the quantity of its correſpondent ſhort one; and this, indeed, may be obſerved of all the long vowels in the genuine *Iſfahání* pronunciation; but the letter *váû* is often redundant, ſo as not to alter the ſound of the ſhort vowel preceding it; as in *khóſh* and *khód:* it may, nevertheleſs, be right to expreſs that letter by an accent.

ঋ

A vocal ſound peculiar to the *Sanſcrit* language: it is formed by a gentle vibration of the tongue preceding our *third* vowel pronounced *very ſhort*, and may be well expreſſed by the proſodial mark, as in *Rĭſhi*, a Saint. When it is connected with a conſonant, as in *Chrĭſhna*, no part of it is uſed but the curve at the bottom. We have a ſimilar ſound in the word *merrily*, the ſecond ſyllable of which is much ſhorter than the firſt ſyllable of *riches*.

ৠ

The ſame complex ſound conſiderably lengthened; and, therefore, diſtinguiſhable by the proſodial ſign of a *long* vowel.

ঌ

In *Bengal*, where the *ra* is often ſunk in the pronunciation of compound ſyllables, this letter expreſſes both ſyllables of our word *lily*: but its genuine ſound, I believe, is *lrĭ*, a ſhort triphthong, peculiar to the *Sanſcrit* language.

ৠ

Whatever be the true pronunciation of the former ſymbol, this is only an elongation of it, and may, therefore, be diſtinguiſhed by the metrical ſign of a long vowel.

ঽ

Our *ſecond* long vowel, beſt repreſented, like the others, by an accent, as in *Véda*, the ſacred book of the *Hindus*, which is a derivative from the *Sanſcrit* root *vid*, to *know*. The notation which I recommend will have this important advantage, that learned foreigners in *Europe*, will in general pronounce the oriental words expreſſed by it, with as much correctneſs and facility as our own nation.

ঐ

This is a diphthong, compoſed of our *firſt* and *third* vowels, and expreſſible, therefore, by them, as in the word *Vaidya*, derived from *Véda*, and meaning *a man of the medical caſt* in *Bengal*. It is pronounced as the *Greek* diphthong in *poimèn*, a *ſhepherd*, was probably

ſounded in ancient *Greece*. The *Arabs* and the *Engliſh* articulate this compoſition exactly alike; though we are pleaſed to expreſs it by a ſimple letter, which on the continent of *Europe* has its genuine ſound. In the mouth of an *Italian*, the conſtituent vowels in the words *mai* and *miei* do not perfectly coaleſce, and at the cloſe of a verſe, they are ſeparated; but a *Frenchman* and a *Perſian* would pronounce them nearly like the preceding long vowel; as in the word *Mai*, which at Paris means our month of the ſame name, and at *Iſfahàn* ſignifies *wine*. The *Perſian* word, indeed, might with great propriety be written *mei*, as the diphthong ſeems rather to be compoſed of our *ſecond* and *third* ſhort vowels; a compoſition very common in *Italian* poetry.

ৠ

Though a coalition of *acàr* and *ucàr* forms this ſound in *Sanſcrit*, as in the myſtical word *óm*, yet it is, in fact, a ſimple articulation, and the *fourth* of our long vowels.

ঔ

Here, indeed, we meet with a proper diphthong, compounded of our *firſt* and *fifth* vowels; and in *Perſia* the conſtituent ſounds are not perfectly united; as in the word *Firdauſi*, which an Italian would pronounce exactly like a native of *Iſfahàn*. Perhaps, in *Arabick* words, it may be proper to repreſent by an accent, the letters *yà* and *wáw*, which, preceded by the *open* vowel, form the reſpective diphthongs in *Zohaìr* and *Jaúheri*: but the omiſſion of this accent would occaſion little inconvenience.

ञ्°

This is no vowel, but an abbreviation, at the end of a ſyllable, of the *naſal* conſonants: thus the *Portugueſe* write *Siaó* for *Siam* with a naſal termination: and the accurate M. D'Anville expreſſes great unwillingneſs to write *Siam* for the country, and *Siamois* for the people of it, yet acknowledges his fear of innovating, 'notwithſtanding his attachment to the original and proper 'denominations of countries and places.' It appears to me, that the addition of a diſtinct letter, *ga*, would be an improper and inconvenient mode of expreſſing the naſal ſound, and that we cannot do better than adopt the *Indian* method of diſtinguiſhing it, in *Sanſcrit*, *Chineſe*, and *Perſian* words, by a point above the letter; as in *Siñha*, a lion; *Cáñhì*, the name of an illuſtrious Emperor; and *Sámáñ*, a houſehold.

ञः

This too is an abbreviation or ſubſtitute, at the cloſe of a ſyllable, for the *ſtrong aſpirate*, and may be diſtinguiſhed in the middle of a word by a hyphen, as in *duh-c'ha*, pain; though it ſeems often to reſemble the *Arabian hà*, which gives only a more forcible ſound to the vowel which precedes it, as in *hhicmah*, ſcience. It is well known, that, when ſuch *Arabick* words are uſed in conſtruction, the *final* aſpirate of the firſt noun has the ſound of *tà*; but, as the letter remains unaltered, it ſhould, I think, be preſerved in our characters, and expreſſed either by two *points* above it, as in *Arabick*, or by an accentual mark; ſince, if we write *Zubdahu'lmulc*, or, *the Flower of the Realm*, with a comma to denote the ſuppreſſion of the *álif*, every learner will know, that the firſt word ſhould be pronounced

nounced *Zubdat.* The *hà* is often omitted by us, when we write *Perſian* in *Engliſh* letters, but ought invariably to be inſerted, as in *Sháhnámah;* ſince the aſpiration is very perceptibly ſounded in the true pronunciation of *dergáh*, *rúbáh*, and other ſimilar words. The *Sanſcrit* character before us has the ſingular property of being interchangeable, by certain rules, both with *ra* and *ſa;* in the ſame manner as the *Sylva* of the *Romans* was formed from the *Æolick* word *hylva*, and as *arbos* was uſed in old *Latin* for *arbor.*

क

We come now to the firſt proper conſonant of the *Indian* ſyſtem, in which a ſeries of letters, formed in the throat near the root of the tongue, properly takes the lead. This letter has the ſound of our *k* and *c* in the words *king* and *cannibal;* but there will be great convenience in expreſſing it uniformly by the *ſecond* of thoſe marks, whatever be the vowel following it. The *Arabs*, and, perhaps, all nations deſcended from SEM, have a remarkable letter ſounded near the palate with a hard preſſure, not unlike the cawing of a raven, as in the word *Káſim;* and for this particular ſound the redundance of our own alphabet ſupplies us with an uſeful ſymbol. The common people in *Hhejàz* and *Egypt* confound it, indeed, with the firſt letter of *Gabr;* and the *Perſians* only add to that letter the hard palatine ſound of the *Arabian kàf:* but if we diſtinguiſh it invariably by *k*, we ſhall find the utility of appropriating our *c* to the notation of the *Indian* letter now before us. The third letter of the *Roman alphabet* was probably articulated like the *kappa* of the *Greeks;* and we may fairly ſuppoſe, that *Cicero* and *Cithara* were pronounced alike at *Rome* and at *Athens.* The *Welſh* apply this letter

letter uniformly to the ſame ſound, as in *cae* and *ceſn*; and a little practice will render ſuch words as *citàb* and *cinnara* familiar to our eyes.

ঽ

We hear much of aſpirated letters; but the only proper *aſpirates* (thoſe, I mean, in which a ſtrong breathing is diſtinctly heard after the conſonants) are to be found in the languages of *India*; unleſs the word *cachexy*, which our medical writers have borrowed from the *Greek*, be thought an exception to the rule. This aſpiration may be diſtinguiſhed by a *comma*, as the letter before us is expreſſed in the word *c'hanitra*, a *ſpade*. The *Arabian*, *Perſian*, and *Tuſcan* aſpirate, which is formed by a harſh protruſion of the breath, while the conſonant is roughly articulated near the root of the tongue, may be written as in the word *makhzen*, a *treaſury*.

ঀ

Whatever vowel follows this letter, it ſhould conſtantly be expreſſed as in the words *gul*, a flower, and *gil*, clay: and we may obſerve, as before, that a little uſe will reconcile us to this deviation from our irregular ſyſtem. The *Germans*, whoſe pronunciation appears to be more conſiſtent than our own, would ſcarce underſtand the *Latin* name of their own country, if an *Engliſhman* were to pronounce it as he was taught at ſchool.

ঘ

The proper aſpirate of the laſt letter, as in the word *Rag'huvanſa*. The *Perſians* and *Arabs* pronounce their *ghain* with a bur in the throat, and a tremulous motion of

of the tongue, which gives it a ſound reſembling that of *r*, as it is pronounced in *Northumberland*: but it is, in truth, a compound guttural, though frequently expreſſed by a ſimple letter, as in *Gaza*, which ſhould be written *Ghazzah*, a city of *Paleſtine*; and in *gazelle*, as the *French* naturaliſts call the *ghazàl*, or antelope, of the *Arabians*. The *Perſian* word *migh*, a cloud, is *még'ha* in *Sanſcrit*; as *míſh*, a ſheep, appears alſo to be derived from *méſha*, by that change of the long vowels which generally diſtinguiſhes the *Iranian* from the *Indian* pronunciation.

ঙ

This is the *naſal* palatine, which I have already propoſed to denote by a *point* above the letter *n*; ſince the addition of a *g* would create confuſion, and often ſuggeſt the idea of a different ſyllable. Thus ends the firſt ſeries of *Nágarì* letters, conſiſting of the *hard* and *ſoft* guttural, each attended by its proper aſpirate, and followed by a *naſal* of the ſame claſs; which elegant arrangement is continued, as far as poſſible, through the *Sanſcrit* ſyſtem, and ſeems conformable to the beautiful analogy of nature.

চ

The next is a ſeries of *compound* letters, as moſt grammarians conſider them, though ſome hold them to be ſimple ſounds, articulated near the palate. The firſt of them has no diſtinct ſign in our own alphabet, but is expreſſed, as in the word *China*, by two letters, which are certainly not its component principles. It might, perhaps, be more properly denoted, as it is in the great work of M. D'Herbelot, by *tſh*; but the inconvenience, of retaining our own ſymbol will be leſs than that of introducing a new combination, or inventing, after the example of Dr. Franklin, a new character.

China

China is a *Sanſcrit* word; and it will be convenient ſo to write it, though I feel an inclination to expreſs it otherwiſe.

छ

The ſame compoſition, with a ſtrong breathing articulated after it. Harſh as it may ſeem, we cannot, if we continue the former ſymbol, avoid expreſſing this ſound, as in the word *ch'handas*, metre.

ज

This too ſeems to have been conſidered by the *Hindus* as a ſimple palatine; but appears, in truth, to be the complex expreſſion of *dzh*. Perhaps the ſame letter may, by a ſmall difference of articulation, partake of two different ſounds. This, at leaſt, we may obſerve, that the letter under conſideration is confounded, as a ſimple ſound, with *ya*; and, as a compound, with *za* one of its conſtituents: thus the *yáſmìn* of *Arabia* is by us called *jaſmin*; while the ſame man is *Giorgi* at *Rome* and *Zorzi* at *Venice*; or (to give an example of both in a ſingle word) *yug*, or *junction*, at *Bánáres*, is *jug* in *Bengal*; and was pronounced *zug*, or, in the nominative, *zugon*, at *Athens*. We ſhould, however, invariably expreſs the letter before us by *ja*.

The *Arabian* letters *ẕhàl'*, *ẕàd*, and *ẕhà*, are all pronounced in *Perſia* like *za*, with a ſort of liſp, from an attempt to give them their genuine ſound: They may be well expreſſed as in fluxionary characters, by a ſeries of points above them, ż, z̈, ż̈.

The

ঝ

The preceding letter aſpirated, as in the word *J' haſha*, a fiſh.

ঞ

This is the *ſecond* naſal, compoſed of the former and the letter *ya*. As the *Italian* word *agnello* and our *onion* contain a compoſition of *n* and *y*, they ſhould regularly be written *anyello* and *onyon*; and the *Indian* ſound differs only in the greater naſality of the firſt letter, which may be diſtinguiſhed, as before, by a *point*. A very uſeful *Sanſcrit* root, ſignifying *to know*, begins with the letter *ja*, followed by this compound *naſal*, and ſhould be written *jñyà*; whence *jñyána*, knowledge: but this harſh combination is in *Bengal* ſoftened into *gyà*: it is expreſſed by a diſtinct character, which ſtands laſt in the plate annexed.*

ট

In the curious work entitled *Tohfahu'l Hind*, or, *The Preſent of* INDIA, this is the *fourth* ſeries of *Sanſcrit* letters; but, in general, it has the *third* rank, more agreeably, I think, to the analogy of the ſyſtem. This claſs is pronounced with an inflexion of the tongue towards the roof of the mouth, which gives an obtuſe ſound to the conſonant, and may be diſtinguiſhed by an accent above it. The firſt is the INDIAN *ṭa*, as in the word *cóṭara*, a rotten tree, and is commonly expreſſed in *Perſian* writings by *four* points, but would be better marked by the ARABIAN *ṭà*, which it very nearly reſembles.

The

* Plate II.

ठ

The ſame with a ſtrong breathing after it, as in *Vaicunt'ha*, or *unwearied*, an epithet of *Viſhnu*.

ड

A remarkable letter, which the *Muſlimans* call the INDIAN *dàl;* and expreſs, alſo, by four points over it: but it ſhould, by analogy to the others, be diſtinguiſhed by an accentual mark, as in the word *danda*, puniſhment. When the tongue is inverted with a ſlight vibratory motion, this letter has a mixture of the *ra*, with which it is often, but incorrectly, confounded; as in the common word *bera* for *beda*, great. It reſembles the ARABIAN *dàd*.

ढ

The preceding letter aſpirated, as in *D'hácà*, improperly pronounced *Dacca*. In the ſame manner may be written the ARABIAN *dhá*, but without the comma, ſince its aſpirate is leſs diſtinctly heard than in the *Indian* ſound.

ण

This is the *naſal* of the third ſeries, and formed by a ſimilar inverſion of the tongue. In *Sanſcrit* words it uſually follows the letters *ra* and *ſha*, (as in *Bráhmeńa*, derived from *Brahmań*, the Supreme Being; *Viſhńu*, a

name

name of his *preſerving* power,) or precedes the other letters of the third claſs.

ত

Here begins the *fourth* ſeries, ... little more to remark. The firſt letter of this claſs is the common *ta*, or *hard* dental, if it may not rather be conſidered as a *lingual*.

থ

Its aſpirate, which ought to be written with a comma, as in the word *Aſwatt'ha*, the *Indian* fig-tree, leſt it be confounded by our countrymen with the *Arabian* ſound in *thurayyà*, the *Pleiads*, which is preciſely the *Engliſh* aſpiration in *think*; a ſound which the *Perſians* and *French* cannot eaſily articulate. In *Perſian* it ſhould be expreſſed by *s* with a point above it.

দ

The *ſoft* dental in *Dêvatà*, or *Deity*.

ধ

The ſame aſpirated, as in *D'herma*, juſtice, virtue, or piety. We muſt alſo diſtinguiſh this letter by a comma from the *Arabian* in *dhahab*, gold; a ſound of difficult articulation in *France* and *Perſia*, which we write *thus* very improperly, inſtead of retaining the genuine *Anglo-Saxon* letter; or expreſſing it, as we might with great convenience, *dhus*.

The

ন

The ſimple *naſal*, ſounded by the teeth with a little aſſiſtance from the noſtrils, but not ſo much as in many *French* and *Perſian* words. Both this *naſal* and the former occur in the name *Nárâyeńa*, or *dwelling in water*.

প

Next come the *labials* in the ſame order; and firſt the hard labial *pa*, formed by a ſtrong compreſſion of the lips, which ſo ill ſuits the configuration of an *Arabian* mouth, that it cannot be articulated by an *Arab* without much effort.

ফ

The proper aſpirate of *pa*, as in the word *ſhepherd*; but often pronounced like our *fa*, as in *fela*, inſtead of *p'hela*, fruit. In truth, the *fa* is a diſtinct letter; and our *pha*, which in *Engliſh* is redundant, ſhould be appropriated to the notation of this *Indian* labial.

ব

The *ſoft* labial in *Budd'ha*, wiſe, and the ſecond letter in moſt alphabets uſed by *Europeans*; which begin with a vowel, a labial, a palatine, and a lingual. It ought ever to be diſtinguiſhed in *Nágarì* by a tranſverſe bar, though the copyiſts often omit this uſeful diſtinction

The

ভ

The *Indian* aſpirate of the preceding letter, as in the word *bhájſhá*, or a *ſpoken* dialect. No comma is neceſſary in this notation, ſince the ſound of *bha* cannot be confounded with any in our own language.

ম

This is the laſt naſal, as in *Menu*, one of the firſt created beings according to the *Indians*: it is formed by cloſing the lips entirely, whilſt the breath paſſes gently through the noſe. And here ends the regular arrangement of the *Nágarì* letters. Another ſeries might have been added, namely, *ſa*, *ſha*, *za*, *zha*, which are in the ſame proportion as *ta*, *tha*, *da*, *dha*, and the reſt; but the two laſt ſounds are not uſed in *Sanſcrit*.

য

Then follows a ſet of letters approaching to the nature of vowels. The firſt of them ſeems, in truth, to be no more than our *third* ſhort vowel beginning a diphthong, and may, therefore, be thought a ſuperfluous character. Since this union, however, produces a kind of conſonant articulated near the palate, it is ranked by many among the conſonants, and often confounded with *ja*: hence *Yamunà*, a ſacred river in *India*, called alſo the *Daughter of the Sun*, is written *Jomanes* by the *Greeks*, and *Jumnà*, leſs properly, by the *Engliſh*.

The

ন

The two liquids *na* and *ma*, one of which is a lingual, and the other a labial, are kept apart, in order to preſerve the analogy of the ſyſtem; and the other two are introduced between the two ſemi-vowels: the firſt of theſe is *ra*, as in RA'MA, the conqueror of *Sílàn*.

ল

The ſecond is *la* in *Lańca*, another name of that iſland both in *Tibut*, and in *India*. A defect in the organs of the common *Bengaleſe* often cauſes a confuſion between theſe two liquids, and even the ſound of *na* is frequently ſubſtituted for the letter before us.

ব

When this character correſponds, as it ſometimes does in *Sanſcrit*, with our *wa*, it is, in fact, our *fifth ſhort* vowel preceding another in forming a diphthong, and might eaſily be ſpared in our ſyſtem of letters; but when it has the ſound of *va*, it is a labial, formed by ſtriking the lower lip againſt the upper teeth, and might thus be arranged in a ſeries of proportionals, *pa*, *fa*, *ba*, *va*. It cannot eaſily be pronounced in this manner by the inhabitants of *Bengal*, and ſome other provinces, who confound it with *ba*, from which it ought carefully to be diſtinguiſhed; ſince we cannot conceive that, in ſo perfect a ſyſtem as the *Sanſcrit*, there could ever have been two ſymbols for the ſame ſound. In fact, the *Montes Parveti* of our ancient Geographers were ſo named from *Parveta*, not *Parbeta*, a mountain. The *wáw* of the *Arabs* is always a vowel, either ſeparate or coaleſcing

with

with another in the form of a diphthong; but in *Perſian* words it is a conſonant, and pronounced like our *va*, though with rather leſs force.

শ

Then follow three *ſibilants*, the firſt of which is often, very inaccurately, confounded with the ſecond, and even with the third: it belongs to that claſs of conſonants which, in the notation here propoſed, are expreſſed by acute accents above them, to denote an inverſion of the tongue towards the palate, whence this letter is called in *India* the *palatine ſa*. It occurs in a great number of words, and ſhould be written as in *palâśa*, the name of a ſacred tree, with a very brilliant flower. In the ſame manner may be noted the *ṣâd* of the *Arabs* and *Hebrews*, which laſt it reſembles in ſhape, and probably reſembled in ſound; except that in *Caśmír*, and the provinces bordering on *Perſia*, it is hardly diſtinguiſhable from the following letter.

ষ

The *ſecond* is improperly written *ſha* in our *Engliſh* ſyſtem, and *cha*, ſtill more erroneouſly, in that of the *French*; but the form generally known may be retained, to avoid the inconvenience of too great a change even from wrong to right. This letter, of which *ſa* and *ha* are not the component parts, is formed ſo far back in the head, that the *Indians* call it a *cerebral*. Either it was not articulated by the *Greeks*, or they choſe to expreſs it by their *Xi*; ſince of the *Perſian* word *Ardaſhîr* they have formed *Artaxerxes*.

স

The dental *ſa*, which reſembles the *Hebrew* letter of the ſame ſound, and, like that, is often miſtaken by ignorant copyiſts for the *ma*.

The

ह

The ſtrong breathing *ha*, but rather miſplaced in the *Nágarì* ſyſtem, ſince it is the ſecond element of articulate ſounds. The *very* hard breathing of the *Arabs* may be well expreſſed by doubling the mark of aſpiration, as in *Muhhammed;* or by an accent above it, in the manner of the long vowels, as in *Aĥmed.*

क्ष

The *Indian* ſyſtem of letters cloſes with a compound of *ca* and *ſha*, as in the word *paríkſhà*, ordeal: it is analogous to our *x*, a ſuperfluous character, of no uſe, that I know of, except in algebra. The *Bengaleſe* give it the ſound of *cya*, or of our *k* in ſuch words as *kind* and *ſky:* but we may conclude, that the other pronunciation is very ancient, ſince the old *Perſians* appear to have borrowed their word *Racſhah* from the *Racſha*, or *demon* of the *Hindus*, which is written with the letter before us. The Greeks rendered this letter by their *Khi*, changing *Dacſhin*, or the ſouth, into *Dakhin.*

All the ſounds uſed in *Sanſcrit*, *Arabick*, *Perſian*, and *Hindì*, are arranged ſyſtematically in the table prefixed to this diſſertation;* and the ſingular letter of the *Arabs*, which they call *âin*, is placed immediately before the conſonants. It might have been claſſed, as the modern *Jews* pronounce it, among the ſtrong *naſals* of the *Indians;* but, in *Arabia* and *Perſia*, it has a very different ſound, of which no verbal deſcription can give an idea, and may not improperly be called a *naſal vowel:* it is uniformly diſtinguiſhed by a *circumflex* either above a ſhort vowel, or over the letter preceding a long one, as *îlm*, learning; *ââlim*, learned.

* Plate I.

Agreeably

Vol. 1 श्रीभगवानुवाच Pl.

अहमेवासमेवाग्रे नान्यद्यत् सदसत् परम्
पश्चादहं यदेतच्च योवशिष्येत सोस्म्यहम्

ऋतेर्थं यत् प्रतीयेत न प्रतीयेत चात्मनि
तद्विद्यादात्मनो मायां यथा भासो यथा तमः

यथा महांति भूतानि भूतेषूच्चावचेष्वनु
प्रविष्टान्यप्रविष्टानि तथा तेषु न तेष्वहं

एतावदेव जिज्ञास्य तत्त्वजिज्ञासुनात्मनः
अन्वयव्यतिरेकाभ्यां यत् स्यात् सवत्र सर्व

Մարոսի Տպարեփա բորեցի

Agreeably to the preceding analyſis of letters, if I were to adopt a new mode of *Engliſh* orthography, I ſhould write *Addiſon's* deſcription of the angel in the following manner, diſtinguiſhing the *ſimple breathing*, or firſt element, which we cannot invariably omit, by a perpendicular line over our firſt or ſecond vowel.

Sò hwen ſm énjel, bai divain cămánd,
Widh raiſiñ tempeſts ſhécs a gilti land,
Sch az ăv lét ór pél Britanya páſt,
Cálm and ſirín hi draivz dhi fyúryas bláſt,
And, plíz'd dh' ālmaitiz ārderz tu perfórm,
Raids in dhi hwerlwind, and dairects dhi ſtārm.

This mode of writing poetry would be the touch-ſtone of bad rhymes, which the eye, as well as the ear, would inſtantly detect; as in the firſt couplet of this deſcription, and even in the laſt, according to the common pronunciation of the word *perform*. I cloſe this paper with ſpecimens of oriental writing; not as fixed ſtandards of orthography, which no individual has a right to ſettle, but as examples of the method which I recommend; and, in order to relieve the dryneſs of the ſubject, I annex tranſlations of all but the firſt ſpecimen, which I reſerve for another occaſion.

I.

Four Diſtichs from the SRI' BHA'GAWAT.*

Mr. WILKINS's Orthography.

ăhămēvāsămēvāgrē nānyădyăt sădăsăt părăm
păschādahăm yădētăchchă yōvăsĕĕshyĕtă sōsmyăhăm

* See Plate IV. The Letters are in Plate II.

rĕĕtērthăm yăt prătēēyētă nă prătēēyētă chātmănēĕ
tădvĕĕdyād ātmánō māyām yăthā bhāsō yăthā tămăh

[nōō
yăthā măhāntēĕ bhōōtānēĕ bhōōtēshōōchchāvăchēshwă-
prăvēĕshtānyăprăvēĕshtānēĕ tăthā tēshōō nătēshwăhăm

ētāvădēvă jĕĕjnāsyăm tăttwă jĕĕjnāsōōnātmănăh
ănwăyă vyătēērēkābhyām yăt syāt sărvătră sărvădā.

This wonderful paſſage I ſhould expreſs in the following manner:

ahamévásamévágrè nányadyat sadasat param
páschádaham yadétachcha yóvaśishyéta sósmyaham

rítért'ham yat pratíyéta na pratíyéta chátmani
tadvidyádátmanó máyám yat'hà bhásó yat'hà tamah

yat'hà mahánti bhútáni bhútéshúchchávachéshwanu
pravishtányapravishtáni tat'hà téshu na téshwaham

étávadéva jijñyásyam tattwa jijñyásunátmanah
anwaya vyatirécábhyám yat syát servatra servadà.

II.

Mo'ha Mudgara.

The title of this fine piece properly ſignifies, *The Mallet of Deluſion* or *Folly*; but may likewiſe be tranſlated, *A Remedy for Diſtraction of Mind*; it is compoſed

posed in regular anapæstick verses, according to the strictest rules of *Greek* prosody, but in rhymed couplets, two of which here form a *ślóca*.

মূঢ়জহীহিধনাগমতৃষ্ণাং কুরুতনুবুদ্ধিমনঃ সুবিতৃষ্ণাং ।
যল্লভসেনিজকর্ম্মোপাত্তং বিত্তং তেনবিনোদয়চিত্তং ॥

কাতবকান্তাকস্তেপুত্রঃ সংসারোয়মতীববিচিত্রঃ ।
কস্যত্বং বাদতআযাতস্ত্বং চিন্তযতদিদং ভ্রাতঃ ॥
মাদুরধনজনযৌবনগর্ব্বং হরতিনিমেষাৎকালঃ সর্ব্বং
মাযামযমিদমখিলং হিত্বাব্রহ্মপদং প্রবিশাশুবিদিত্বা ॥

নলিনীদলগতজলবত্তরলং তদ্বজ্জীবনমতিশযচপলং ।
ক্ষণমিহসজ্জনসংগতিরেকাভবতিভবার্ণবতরণেনৌকা ॥
যাবজ্জনং তাবন্মরণং তাবজ্জননীজঠরেশযনং ।
ইতিসংসারেস্ফুটতরদোষঃ কথমিহমানবতবসন্তোষঃ ।

দিনযামিন্যৌসাযং প্রাতঃ শিশিরবসন্তৌপুনরাযাতঃ ।
কালঃ ক্রীড়তিগচ্ছত্যাযুস্তদপিনমুঞ্চত্যাশাবাযুঃ ॥
অঙ্গং গলিতং পলিতং মুণ্ডং দন্তবিহীনং জাতং তুণ্ডং
করধৃতকম্পিতশোভিতদণ্ডং তদপিনমুঞ্চত্যাশাভাণ্ডং ॥

সুরবরমন্দিরতরুতলবাসঃ শয্যাভূতলমজিনং বাসঃ।
সর্ব্বপরিগ্রহভোগত্যাগঃ কস্যসুখং ন করোতিবিরাগঃ।

শত্রৌমিত্রেপুত্রেবন্ধৌমাকুরুযত্নং বিগ্রহসন্ধৌ।
ভবসমচিত্তঃ সর্ব্বত্রত্বং বাঞ্ছস্যচিরাদ্যদিবিষ্ণুত্বং॥
অষ্টকুলাচলসপ্তসমুদ্রব্রহ্মপুরন্দরদিনকররুদ্রাঃ।
নত্বং নাহং নায়ং লোকস্তদপিকিমর্থং ক্রিয়তেশোকঃ॥

ত্বয়িময়িচান্যত্রৈকোবিষ্ণুর্ব্যর্থং কুপ্যসিময্যসহিষ্ণুঃ।
সর্ব্বং পশ্যাত্মন্যাত্মানং সর্ব্বত্রোৎসৃজভেদজ্ঞানং॥
বালস্তাবৎক্রীড়াসক্তস্তরুণস্তাবৎতরুণীরক্তঃ।
বৃদ্ধস্তাবৎচিন্তামগ্নঃ পরমেব্রহ্মণিকোপিনলগ্নঃ॥

দ্বাদশপঞ্জটিকাভিরশেষঃ শিষ্যাণাং কথিতোভ্যুপদেশঃ।
যেষাং নৈষবরোতিবিবেক স্তেষাং কুরুতামতিরেকং।

múdha jahíhi dhanágamatrishńám
curu tenubuddhimanah suvitrishnám
yallabhasè nijacarmópáttam
vittam téna vinódaya chittam.

cá tava cánta castè putrah
sańscáróyam atívavichittrah
casya twam và cutà áyáta
stattwam chintaya tadidam bhrátah.

mâ curu dhanajanayauvanagarvam
harati niméshât calah sarvam
máyámayamidamac'hilam hitwà
brehmapadam previśáśu viditwà.

nalinídalagatajalavattararalam
tadvajjívanamatiśaya chapalam
cshenamiha sajjana sangatiréchà
bhawati bhawárnavataranè naucà.

angam galitam palitam muńdam
dantavihińam játam tuńdam
caradhrítacampitaśóbhitadańdam
tadapi namuńchatyáśa bhándam.

yávajjananam távanmarańam
távajjananì jatharè śayanam
iti sansárè ſp'huṫatara dóshah
cat'hamiha mánava tava ſantoſhah.

dinayáminyau sáyam prâtah
śiśiravasantau punaráyátah
cálah criḋati gach'hatyáyu
stadapi na muńchatyáśáváyuh.

suravaramańdiratarutalavásah
śayyà bhùtalamajinam vásah
servaparigrahabhógatyágah
casya suc'ham na caróti virágah.

śatrau mitrè putrè bańdhau
mà curu yatnam vigrahasańdhau
bhava samachittah servatra twam
váńch'hasyachirád yadi viſhnutwam

ashṫaculáchalaseptasamúdrá
brehmapurańdaradinacararudráh
natwam náyam nayam lóca
stadapi cimart'ham criyatè śócah.

twayi mayi chányatraicò vishnur
vyart'ham cupyasi mayyasahishnuh
servam paśyátmanyátmánam
servatrótsrija bhédajńyánam

válaſtávat críḍáśacta
staruńastávat tarúńìracṫah
vriddhastávach chintámagnah
peremé brahmańi cópi nalagnah.

dwádaśa pajj'haṫicábhiraśéshah
śishyánam cat'hitóbhyupadéśah
yéshám naisha caróti vivécam
téshám cah curutámatiréçam.

A verbal Tranſlation.

1. Reſtrain, deluded *mortal*, thy thirſt of acquiring wealth; excite an averſion *from it* in *thy body*, underſtanding, and inclination: with the riches which thou

thou acquireſt by thy own actions, with theſe gratify thy ſoul.

2. Who *is* thy wife; who thy ſon? How extremely wonderful is even this world! Whoſe *creature* thou alſo *art;* whence thou cameſt. Meditate on this, O brother, *and again* on this.

3. Make no boaſt of opulence, attendants, youth; all *theſe* time ſnatches away in the twinkling of an eye: checking all this illuſion like *Máyà*, ſet thy heart on the foot of BRAHME, ſpeedily gaining knowledge of him.

4. As a drop of water moves tremulous on the lotos-leaf, thus *is* human life inexpreſſibly ſlippery: the company of the virtuous *endures* here but for a moment; that is our ſhip in paſſing the ocean of the world.

5. The body *is* tottering; the head, grey; the mouth, toothleſs: the delicate ſtaff trembles in the hand which holds it: ſtill the flaggon of covetouſneſs remains unemptied.

6. How ſoon *are we* born! how ſoon dead! how long lying in the mother's womb! How great is the prevalence of vice in this world! Wherefore, O man, haſt thou complacency here below?

7. Day and night, evening and morning, winter and ſpring, depart and return: time ſports, life paſſes on; yet the wind of expectation continues unreſtrained.

8. To dwell under the manſion of the high gods at the foot of a tree, to have the ground for a couch, and a hide for veſture, to renounce all extrinſick enjoyments; whom doth not ſuch devotion fill with delight!

9. Place

9. Place not thy affections too ſtrongly on foe or friend, on a ſon or a kinſman, in war or in peace: be thou even-minded towards all, if thou deſireſt ſpeedily to attain the nature of VISHNU.

10. Eight original mountains, and ſeven ſeas, BRAHME, INDRA, the SUN, and RUDRA, *theſe are permanent:* not thou, not I, nor this or that people: wherefore then ſhould anxiety be raiſed *in our minds?*

11. In thee, in me, in every other being, *is* VISHNU: fooliſhly art thou offended with me, not bearing my approach: ſee every ſoul in thy own ſoul; in all places lay aſide a notion of diverſity.

12. The boy ſo long delights in his play, the youth ſo long purſues his damſel, the old man ſo long broods over uneaſineſs, *that* no one meditates on the Supreme Being.

13. This is the inſtruction of learners delivered in twelve diſtinct ſtanzas: what more can be done with ſuch, as this work fills not with devotion?

III.

The following Elegy, which is choſen as a ſpecimen of *Arabick*,* was compoſed by a learned Philoſopher and Scholar, M'IR MUHAMMED HUSAIN, before his journey to *Haidarábád* with RICHARD JOHNSON, Eſq.

má ánsa lá ánsa állatí
jáat ílayya álaí hadhar
álnaúmu áthkala jafnahá
waálkalbu fára bihi áldkaár

* Plate III. and Plate V.

هذه الأبيات لمير محمد حسين

ما أنس لا أنس التي ... جاءت إلي على حذر
اليوم أثقل جفنها ... والقلب طار به الذعر
رصدت أساود قومها ... فتجلست منها الغرر
ترعت حلا حلا لها ... إلا ثقاء ما بشر
تشكو الطريق لظلمة ... فقدت بها نجم السحر
في ليلة قد كحلت ... بسواد جفن القمر
وترى الغمام كأجمل ... وترى الحزم كأي أشر
تبكي عيون السماء ... على حذا ثقا الزهر
والبرق يبسم ثغره ... عجبا لها إلى العبر
والرعد كاد يحرق ... الأصماخ في صم الحجر
فوت تعانقني وقد ... حذرت غساق من خفر
والدمع بل خدودها ... وسقى رياضا للنظر
وتنفست إذ كلمت ... ورمت فؤادي بالسرر
ظلت تعاتبني على ... أن مد لي ضحك البعر
قالت أديت فؤادنا ... وأدفنه حي مقفر
بعضي أوامر للهوى ... وتطيع ناصحك الغدر
وتدور من أرض إلى ... أرض وما ترضى المقر
يوما تسير بك البحار ... وبارة تهزمي بسر
ماذا أفادك حوله ... حول البلاد سوى الصخر
ألفت أطباء الفلا ... وسكنت آرام البشر
أم قد مللت جوارنا ... يا ويح حل قد نفر
فارحم على قلبي الذي ... رام السادة وما قدر

تمت

raśadat áśáwida kaúmihá
fatakhallasat minhá álgharar
nazaát khalákhílán lehá
állá tufájíhná bishar.

teshcú álťarika liálhulmahiń
fakadat bihá najma álsahhar
fí laílahiń kad cahhalat
bisawádihá jafna álkamar

wa teraí álghamáma caájmulíí
terâi álnujúma álaí áshar
tebcí ûyúnoń lilsemái
âlaí ĥadáyikihá álzuhar

waálberku yebsimu thegruhu
âjabáń lihática álghiyar
waálrâdu cáda yukharrikú
álášmákha fí ṡummi álĥajar

fahawat tuâánikuní wakad
ĥadharat ínáki min khafar
waáldemú bella khudúdahá
wasakaí riyaááń lilnaádhar

wateneffasat iádh callamat
waramat fuwádí biálsherar
áhállat tuâátibuneí âlaí
án jedda lí âzmu álsafar

kálat

kálat ádhabta ſuwádaná
waádhaktahu ḣerra álſakar
taâśí áwámera lilhawaí
watuṫíûu náśiḣaca álghudar

watedúru min árḋiṅ ílaí
árdiṅ wamá terḋái álmekarr
yaúmán tesíru bica álbihháru
watáraḣaṅ turmaí bibarr

má dhá áfádaca jaúlahoṅ
ḣaúla álbiládi ſiwaí álḋajar
aáliſta áḋhbáa álfelá
wanesíta áráma álbaſher

âm kad melelta jiwáraná
yá wáiḣa khillìn kad naſar
fárḣem âlaí kalbí álladhí
ráma álſuluwwa wamá kadar.

The Tranſlation.

1. Never, oh! never ſhall I forget the fair one, who came to my *tent* with timid circumſpection:

2. Sleep ſat heavy on her eye-lids, and her heart fluttered with fear.

3. She had marked the dragons of her tribe, (the *ſentinels,*) and had diſmiſſed all dread of danger from them;

4. She

4. She had laid aſide the rings which uſed to grace her ankles, leſt the ſound of them ſhould expoſe her to calamity:

5. She deplored the darkneſs of the way, which hid from her the morning-ſtar.

6. It was a night, when the eye-laſhes of the moon were tinged with the black powder *(alcohol)* of the gloom;

7. *A night*, in which thou mighteſt have ſeen the clouds, like camels, eagerly gazing on the ſtars;

8. While the eyes of heaven wept on the bright borders of the ſky;

9. The lightning diſplayed his ſhining teeth, with wonder at this change *in the firmament;*

10. And the thunder almoſt burſt the ears of the deafened rocks.

11. She was deſirous of embracing me, but, through modeſty, declined my embrace.

13. Tears bedewed her cheeks, and to my eyes, watered a bower of roſes.

13. When ſhe ſpake, her panting ſighs blew flames into my heart.

14. She

14. She continued expoſtulating with me on my exceſſive deſire of travel.

15. 'Thou haſt melted my heart, (ſhe ſaid,) and 'made it feel inexpreſſible anguiſh.

16. 'Thou art perverſe in thy conduct to her who 'loves thee, and obſequious to thy guileful adviſer.

17. 'Thou goeſt round from country to country, 'and art never pleaſed with a fixed reſidence.

18. 'One while the ſeas roll with thee; and another 'while, thou art agitated on the ſhore.

19. 'What fruit, but painful fatigue, can ariſe from 'rambling over foreign regions?

20. 'Haſt thou aſſociated thyſelf with the wild an-'telopes of the deſert, and forgotten the tame deer?

21. 'Art thou weary then of our neighbourhood? 'O woe to him who flees from his beloved!

22. 'Have pity at length on my afflicted heart, 'which ſeeks relief, and cannot obtain it.'

Each couplet of the original conſiſts of two *Dimeter Iambicks*, and muſt be read in the proper cadence.

IV.

As a ſpecimen of the old *Perſian* language and character, I ſubjoin a very curious paſſage from the *Zend*, which was communicated to me by BAHMAN, the ſon of BAHRA'M, a native of *Yezd*, and, as his name indicates, a *Pârsì*: he wrote the paſſage from memory, ſince his books in *Pahlavi* and *Derì* are not yet brought to *Bengal*. It is a ſuppoſed anſwer of I'ZAD, or GOD, to ZERA'HTUSHT, who had aſked by what means mankind could obtain happineſs.

*Az pid u mâd che ce pid u mâd ne khoſhnúd bìd hargiz bihiſht ne vinìd; be jáyi cirfah bizah vinìd: mehán rà be ázarm níc dârìd, cehán rà be hîch gúnah mayázárìd: aj khîſhávendi dervîſh nang medárîd: dâd u vendâd i khâlıki yectá beh càr dárîd; az riſtákhî zi ten paſín endî ſheh nemáyìd: mabádâ ce aſhù ten khî ſh rà dúzakhî cunìd, va ánche be khî ſhten naſhâhad be caſán mapaſendîd va ma cunìd: herche be gitì cunìd be mainù az aúeh pazìrah áyed.**

A verbal Tranſlation.

"If you do that with which your father and mother are not pleaſed, you ſhall never ſee heaven; inſtead of good ſpirits, you ſhall ſee evil beings. Behave with honeſty and with reſpect to the great; and on no account injure the mean: hold not your poor relations a reproach to you: imitate the juſtice and goodneſs of the Only Creator: meditate on the reſurrection of the future body, leſt you make your ſouls and bodies the inhabitants of hell; and whatever would be unpleaſing to yourſelves, think not that pleaſing to others, and do it not: whatever good you do on earth, for that you ſhall receive a retribution in heaven."

Plate VII. The *Zend* Letters are in Plate III.

It

It will, perhaps, be ſuſpected (and the language itſelf may confirm the ſuſpicion) that this doctrine has been taken from a religion very different, both in age and authority, from that of ZERA'HTUSHT.

V.

The following ſtory in modern *Perſian*, was given to me by *Mirzà* ABDU'LRAHHI'M, of *Iſfahàn*: it ſeems extracted from one of the many poems on the loves of MEJNU'N and LAIL'I, the ROMEO and JULIET of the Eaſt. Each verſe conſiſts of a *Cretick* foot, followed by two *Choriambi*, or a *Choriambus* and a *Moloſſus*.

شیر مست سر پستان الم پرورش یافتهٔ دامن غم

آب رنگ ورخ لیلای جنون خال رخسارهٔ مامون مجنون

یافت چون راه بکاشانهٔ عشق آستان شد بدر خانهٔ عشق

بر سرش شخص جنون سایه فکند قصهٔ عاشقیش گشت بلند

در عرب هر طرفی غوغا شد نقل او نقل مجالس ها شد

امیری بعرب والا شان صاحب نکنت وثروت بجهان

نرگسش از غم هجران دیده پر گل داغ محبت چیده

دیده در طفلی خود سوز فراق تلخی زهر فراقش بمذاق

یافت چون قصهٔ آن درد سکال کرد فرمان بغلامي در حال

که سوي نجد قدم ساز ز سر شو به تعجیل روان چون صرصر
آنکه دلبرده ز مجنون بنگاه ببرم زود بیاور نا گاه

رفت و آورد غلامک در حال لیلي آن پادشه ملک جمال
بغلامي دگرش شد فرمان که تو ام شو بسوي دشت روان

جانب زینت ارباب جنون شمع پر نور محبت مجنون
زود آور برم آن سوخته را آن جگر سوز غم اندوخته را

رفت و برگشت غلامک چونگاه والي کشور عشقش همراه
کرد اورا چو نظر مرد امیر دید زاري بغم عشق اسیر

بر سرش مشخص جنون کرده وطن زخم هجران به تنش پیراهن
موي سر بر بدنش کثرت قبا موزه از آبلهٔ پا بر پا

شانه از خار مغیلان بر موش خرقه از ریگ بیابان بر دوش
گفت کاي گم شدهٔ وادي غم هیچ خواهي که تمنّات دهم

سر فرازت کنم از مکنت و جاه لیلی آرم ببرت خاطر خواه

گفت نی نی که بعید است بعید ذره را هم نظری با خورشید

گفت خواهی که کنی راست بکو سیر آن صفحهٔ رخسار نکو

یانداری بجمالش میلی راست بر کوی بجان لیلی

گفت کای قدوهٔ ارباب کرم ذره خاک درت تاج سرم

بر دلم درد زلیلی کافی است خواهش وصل زلیلی الصافیست

بهر خورسندی این جزو حقیر بس بود پرتوی از مهر منیر

گفت و کردید سوی دشت روان دیدهٔ گریان و مژهٔ اشک فشان

Shírmaſti ſerí piſtáni álem
perveręſh yáftehi dámeni ghem

ābi rang ò rokhi lailáyi jonùn
kháli rokhſárehi hámún Mejnún

yáft chún ráh bi cáſhánehi îſhk
āſitán ſhud bideri khánehi iſhk

ber ſereſh ſhakhśi jonùn ſáyah fiçand
kiśśehi âáſhikì ú ſh gaſht boland

der árab her ŧarafi ghaughà ſhud
nakli ú nokli meiális-hà ſhud

búd

búd ámírì biârab válà ſhàn
*śaḳibi micnat ò ſervat * bijehàn*

torc tázi ghemi hejrán dídah
pur guli dághi moḥabbat chídah

dídah der ḳiſliyi khód súzi ſerák
talkhiyi zahri ſerákeſh bimeżák

yáſt chun kiśśehi ān derd ſignál
card fermán bighulámì der hál

ceh súyì najd kadam ſáz zi ſer
ſhau beh tájíl ravàn chùn śerśer

ān ceh dil bordah zi Mejnùn bi nigàh
beh berem zúd biyáver hemráh

raſt ò āvard ghulámac der hál
Laílì ān pádiſhahi mulci jemál

beh ghulámì digareſh ſhud fermán
ceh tò hem ſhau bi súyì daſht raván

jánibi zínati árbábì jonún
ſhemî pur núri moḥabbat Mejnùn

The reader will supply the point over *s*, when it stands for *th*.

zùd āver berem āṅ ſúkhtah rà
āṅ jigarsùzi ghem ándúkhtah rà

raſt ò bergaſht ghulámac chú nigáh
váliyi ciſhvari îſhkeſh hemráh

card úrà chú naẑar mardi ámír
díd zárì bi ghemi îſhk ásìr

ber ſereſh ſhakhŝi jonùn cardah vaŝen
zakhmi hejràn bi teneſh pírâhen

múyi ſer ber bedeneſh gaſhtah kobà
múzah áz ābilahi pâ ber pà

ſhânah áz khârì mughíláṅ ber mùſh
khirkah áz rigi biyábáṅ ber dúſh

goſt câì gomſhudahi vádiyi ghem
hích khwáhì ceh temennât dehem

ſerferázat cunam áz micnat ó jáh
Laílì ārem biberet kháter khwáh

goſt nì nì ceh baîídeſt baîíd
ẑe reh rā hem nazarì bà khorſhíd

goſt khwáhì ceh conì râſt bigú
ſaíri āṅ śafhahi rokhſári nicú

yâ nedâri bijemâleſh maîlì
râſt bergúyi bi jáni Laîlì

goſt câì kodvahi árbábi cerem
żerrahi kháci deret táji ſerem

ber dilem derd zi Laîlì cáſiſt
khwâheſhi vaśl zi bī inſáſiſt

bahri khorſendiyi ín jozvi ḥakîr
bas buvad pertavì áz mihri monîr

goſt ò gardìd ſúyì daſht ravàn
dídah giryán ò mizhah áſhcſishàn

The Tranſlation.

1. *The man who had* inebriated himſelf with milk from the nipple of Anguiſh, who had been nouriſhed in the lap of Affliction,

2. MEJNU'N, mad with the bright hue and fair face of LAILÌ, himſelf a dark mole on the cheek of the deſert,

3. Having found the way to the manſion of Love, became *fixed like* the threſhold on the door of Love's palace.

4. Over his head the form of Madneſs had caſt her ſhadow: the tale of his paſſion was loudly celebrated.

5. Among the *Arabs* a tumult aroſe on all ſides: the relation of his adventures was a deſſert in their aſſemblies.

6. A powerful Prince reigned in *Arabia*, poſſeſſing worldly magnificence and riches:

7. He had ſeen the depredations of Grief through abſence from a beloved object: he had plucked many a black-ſpotted flower from *the garden of* Love.

8. Even in his infancy he had felt the pain of ſeparation: the bitter taſte of that poiſon remained on his palate.

9. When he learned the ſtory of that afflicted lover, he inſtantly gave an order to a ſlave,

10. *Saying*, 'Make thy head like thy feet in running 'towards *Najd*: go with celerity, like a violent wind.

11. 'Bring ſpeedily with thee to my preſence, Her 'who has ſtolen the heart of MEJNU'N with a glance.'

12. The ſtripling ran, and in a ſhort time brought LAILI', that Empreſs in the dominion of beauty.

13. To another ſlave *the* Prince gave this order: 'Run thou alſo into the deſert:

14. 'Go to that ornament of frantic lovers, MEJNU'N, 'the illumined taper of love.

15. 'Bring

15. 'Bring quickly before me that inflamed *youth*, that heart-conſumed, anguiſh-pierced lover.'

16. The boy went, and returned, in the twinkling of an eye, accompanied by the ruler in the territories of Love.

17. When the Prince looked at him, he beheld a wretch in bondage to the miſery of deſire.

18. Madneſs had fixed her abode on his head: he was clothed, as with a veſt, with the wounds of ſeparation.

19. His locks flowed, like a mantle, over his body: his only ſandal was the callus of his feet.

20. In his hair ſtuck a comb of *Arabian* thorns: a robe of ſand from the deſert covered his back.

21. 'O thou, (ſaid *the Prince,*) who haſt been loſt in 'the valley of ſorrow, do thou not wiſh me to give 'thee the object of thy paſſion,

22. 'To exalt thee with dignity and power, to bring 'LAILI before thee, gratifying thy ſoul?'

23. 'No, no, (anſwered he:) far, far is it from my 'wiſh that an atom ſhould be ſeen together with the ſun.'

24. 'Speak truly, (replied the Prince:) art thou not 'willing to recreate thyſelf on the ſmooth plain of that 'beautiful cheek?

25. 'Or haſt thou no inclination to enjoy her charms?
'I adjure thee, by the ſoul of LAILÍ, to declare the
'truth!'

26. He rejoined: 'O chief of men with generous
'hearts, a particle of duſt from thy gate is a diadem on
'my head.'

27. 'The pain of my love for LAILÍ is ſufficient for
'my heart: a wiſh to enjoy her preſence *thus* would be
'injuſtice.'

28. 'To gratify this contemptible ſoul of mine, a
'ſingle ray from that bright luminary would be enough.'

29. He ſpake, and ran towards the deſert, his eye
weeping, and his eye-laſhes raining tears.

Theſe couplets would fully anſwer the purpoſe of ſhowing the method in which *Perſian* may be written according to the original characters, with ſome regard alſo to the *Iſfahânè* pronunciation; but ſince a very ingenious artiſt, named MUHAMMED GHAUT'H, has engraved a tetraſtich on copper, as a ſpecimen of his art, and ſince no moveable types can equal the beauty of *Perſian* writing, I annex his plate*, and add the four lines, which he has ſelected, in *Engliſh* letters: they are too eaſy to require a tranſlation, and too inſignificant to deſerve it.

Huwa'l âzìz
Chaſhmi terahhum zi tó dárìm mà
keblah tóyì rù beceh árìm mà
hájati mà áz tò ber áyed temàm
dámenat áz caf naguzárìm má.

* Plate VI.

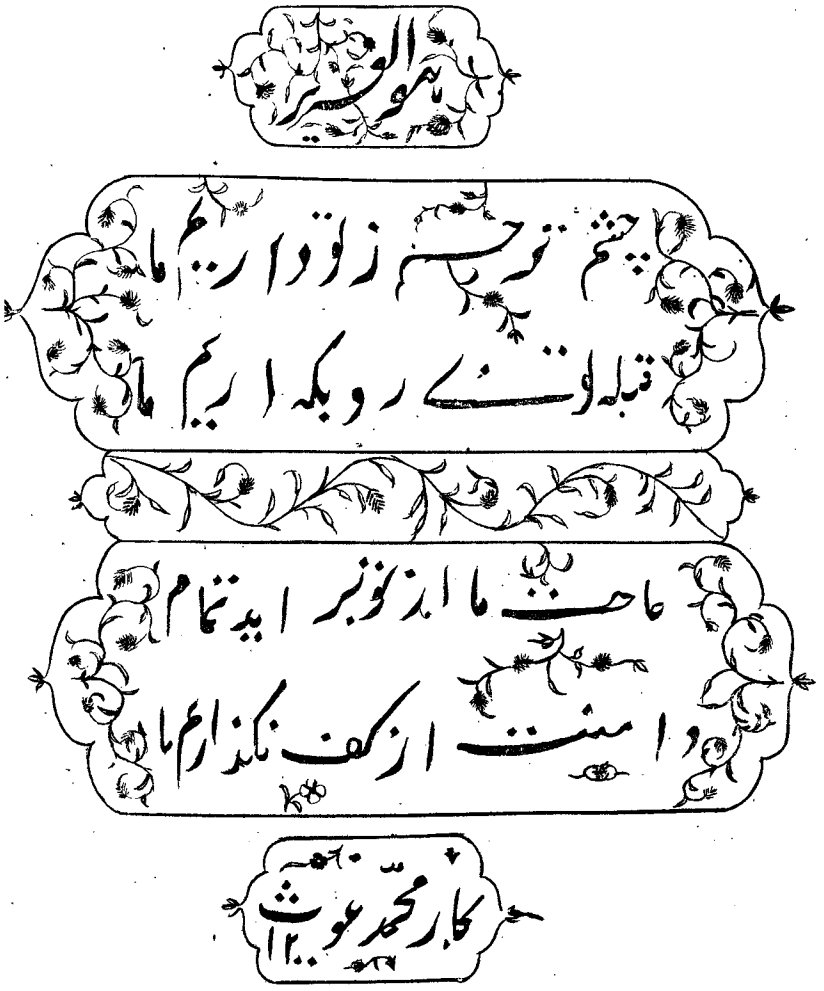
VI. The

هو العزیز

چشم ترحم ز تو داریم ما
قبلهٔ توئی رو بکه اریم ما

حاجت ما از تو بر اید تمام
دامنت از کف نگذاریم ما

کار محمد غوث ۱۲۰۰



VI.

THE first specimen of *Hindì*, that occurs to me, is a little *Ghazal*, or love-song, in a *Choriambick* measure, written by GUNNA' BEI-[redacted], the wife of GHA'ZIU'LDI'N KHA'N, a man of consummate abilities and consummate wickedness, who has borne an active part in the modern transactions of Upper *Hindústàn*.

مدعي همسي سخن ساز بسالوسي هي
اب تمنا کو یهان مژده مایوسي هي
اه اب کثرت داغ غم خوبانسي تمام
صفحه سینه میرا جلوه طاوسي هي
هي میري طرح جکر خون تیرا مدت سي
اي حنّا کسکي تجهي خواهش پا بوسي هي
عوض درد مزي سي وه بهري هین ساري
جس لب زخم نی شمشیر تیري چوسي هي
تهمت عشق عبث کرتي هین مجهپر منت
هان یهه سچ ملني کي خوبان سي تو تک خوسي هي

Muddaîì hemsè sokhan sáz bi sálúsì haì
ab tamennà cò yehàṅ muzhdeï máyúsì haì

áh ab casrati dághi ghemi khúbáṅ sè temàm
śafhaï sínàh mérà jilwaï ťaúsì haì

haì mérì t́arah̆ jigar khúni térà muddatsè
aì h̆innà ciscì tujhè khwáhishi pábúsí haì

âwaz̈i derd mezè sè wah bherè haiṅ sárè
jis lebi zakhm nè shemshíri térì chúsì haì.

tohmati îshk âbas cartè haiṅ mujhper Minnat
háṅ yeh sech milnè cì khúbàn sè tù tuc khúsì haì.

The Tranſlation.

1. My beloved foe ſpeaks of me with diſſimulation; and now the tidings of deſpair are brought hither to the deſire of my ſoul.

2. Alas! that the ſmooth ſurface of my boſom, through the marks of burning in the ſad abſence of lovely youths, is become like the plumage of a peacock.

3. Like me, O *Hinnà*, (the fragrant and elegant ſhrub, with the leaves of which the nails of *Arabian* women are dyed crimſon,) thy heart has long been full of blood: whoſe foot art thou deſirous of kiſſing?

4. Inſtead of pain, *my beloved*, every wound from thy cimeter ſucks with its lips the ſweetneſs with which it is filled.

5. The ſuſpicion of love is vainly caſt on MINNAT— Yes, true it is, that my nature rather leads me to the company of beautiful youths.

Thus have I explained, by obſervations and examples, my method of noting in *Roman* letters, the principal languages of *Asia*; nor can I doubt that *Armenian*, *Turkiſh*, and the various dialects of *Tartary*, may be expreſſed in the ſame manner with equal advantage: but, as *Chineſe* words are not written in alphabetical characters, it is obvious that they muſt be noted according to the beſt *pronunciation* uſed in *China*: which has, I imagine, few ſounds incapable of being rendered by the ſymbols uſed in this eſſay.

II. ASTRONOMICAL

II.

ASTRONOMICAL OBSERVATIONS IN *FORT WILLIAM,* AND BETWEEN MADRAS AND CALCUTTA.

By Colonel THOMAS D. PEARSE,

Commandant of the Artillery, and Second in Command of the Bengal Army.

I BEG leave to communicate to the Society ſome Aſtronomical Obſervations which I made at different times in *Fort William.*

The clock I uſed from December, 1775, was made by Ellicot: It beats dead ſeconds: there is one hand for minutes, and the hours revolve with the plate fixed to the hour-wheel.

The pendulum can be lengthened without ſtopping the clock, by means of a ſcrew, which ſupports the ſpring by which the pendulum hangs. And the pendulum is deſcribed in the 47th volume of the Philoſophical Tranſactions, p. 479. The clock-caſe is firmly ſcrewed to the wall. The tranſit inſtrument was made by Sisson; it is four feet long, and has a double object glaſs. This is ſupported by two iron bars, which are joined to a ſquare frame, that lies two feet under the floor, buried in brick-work.

The upright bars are protected by a caſe of wood, which is fixed to the houſe, without touching them in any part.

At firſt I uſed the cornice of the Commandant's houſe to adjuſt by; but afterwards a ſlider, with a ſlit, in place,

place, behind which I could place a light to adjuſt with by night. There was another object alſo to the ſouth, about 1500 yards off, which I could uſe by day; and both theſe were fixed when the tranſits by telescope and equal altitudes agreed, and were examined from time to time.

I had only a tolerably good HADLEY's quadrant and quickſilver, till December, 1776, when I was lucky enough to get an 18 inch land quadrant, made by RAMSDEN, with a micrometer to ſubdivide the nonius. This inverts, and is capable of the niceſt adjuſtments. My firſt teleſcope was an 18 inch reflector, made by GREGORY.

In Auguſt, 1777, I obtained Mr. SMITH's refractor, made by DOLLOND, with a triple object glaſs, and a double object glaſs micrometer. And I made a polar axis for it of braſs with rack-work, and a declination circle not divided, which is alſo racked; to which, when the micrometer was uſed, the teleſcope was fixed.

I likewiſe communicate obſervations made by myſelf chiefly, and by Lieutenant COLEBROOKE for me, to aſcertain the longitudes and latitudes of places between *Madras* and *Calcutta*.

Going to *Madras* in 1782, I uſed a HADLEY's octant and quickſilver, which I ſhall here deſcribe.

The octant had a wooden index. I ſeparated the part which carries the ſpeculum from the arm; then fixed it into a lath, and turned it on its own center: it was three inches of an inch thick; the thickneſs was divided into three parts, and then the edge was turned away on each ſide; ſo that the whole piece of wood became like three wheels of different diameters joined together on

their flat ſurfaces, and the middle one was the biggeſt; that below was the next in ſize; and the upper one was the leaſt, and only equal to the braſs plate on which the ſpeculum was ſcrewed.

A plate of braſs, nearly one tenth thick, broad enough to admit of a hole as big as the under circular part of the turned wood, and to afford a rim of half an inch broad, was then fixed into the lath, and had a hole turned in it of that ſize: on one ſide it had an arm as broad as the wooden index was.

A ſecond plate of the ſame kind was alſo prepared; but the hole was larger, though leſs than the middle part of the turned wood.

The turned piece was then fixed to the octant by its pin, and the plate with the ſmaller hole beneath it. As they fitted very nicely, the braſs plate turned upon the wood round the center of the octant, if that were held faſt; and both turned on the center pin if they were preſſed together.

The plate with the large hole was then laid above the turned wood, its center coinciding with the common center: the wooden arm of the index had the end neareſt the center cut away, above and below, equal to the thickneſs of the plates of braſs: it was there fixed to the octant in the ſame manner as before it was cut off from the center, and the braſs plates were drilled, and rivetted to it.

When theſe plates were preſſed together, they held the turned piece as it were in a vice; when they were forced aſunder, the turned piece might be moved independently; and there were in the direction of the radius

radius two ſcrews, one beyond the ſpeculum, and one between it and the nonius, for the purpoſe; they had button heads, and their ſhanks were as high as the top of the index ſpeculum.

On the back of the octant there was a ſcrew with a button head; the thread entered the center pin, and the ſhoulder preſſed upon the plate which keeps that pin in its place.

The back ſcrew and vice ſcrews being ſlacked, the index ſpeculum was brought parallel to the horizon glaſs; then the vice ſcrews were turned to join the ſpeculum to the index, as before the alteration was made.

To extend the power of the octant occaſionally, it was nicely adjuſted: then the index was carried to 90°, and there ſcrewed to the limb. Next the back ſcrew of the center pin was forced, till by its preſſure the ſpeculum was held faſt: after that, the vice ſcrews being ſlacked, the index was carried back to 0°, and there ſcrewed to the limb. Whilſt it was in this poſition, the vice ſcrews were again turned, which fixed the ſpeculum-piece to the index, and then the back ſcrew being ſlacked, the ſpeculum followed its motions. When it was uſed, the index ſhewed the angle which was to be added to 90° for the angular diſtance.

By this contrivance, with an octant, I could take angles of 150°; and conſequently meridian altitudes as far as 75°: and if the horizon glaſs and teleſcope could have been made to ſlide nearer towards the center, it would have increaſed ſtill further.

In Ramsden's new quadrant there is a ſcrew to adjuſt the horizon glaſs, and bring it parallel to the other: provided the index ſpeculum is perpendicular to the limb, this is all well; but if that be inclined, as ſoon as the index quits 0°, there will be an error in the angles obſerved.

obſerved. I found it ſo experimentally, and corrected my quadrants accordingly, by turning the horizon glaſs round its own axis; then having adjuſted as uſual, the error ſideways was corrected by moving both glaſſes, by means of their adjuſting ſcrews, and dividing the error between them. If, when the horizon glaſs was reſtored to its proper poſition, there ſtill was a lateral error, the operation was repeated. I do not find any mention of this in any of the inſtructions for uſing HADLEY's inſtruments that I have ſeen.

The horizon was artificial, invented for the occaſion, and conſiſted of a wooden trough about $\frac{1}{2}$ an inch deep, (or rather more,) filled nearly with quickſilver, which ſerved to float a plate of thick glaſs, the under ſurface of which had been unpoliſhed, and blacked, that only one image might appear. This needs not any adjuſtment: the only requiſite is, that the glaſs be equally thick all over, and ſmooth: that which was uſed was a part of a very large looking-glaſs, that had been broken by accident.

The watch was a time-keeper, by BROOKBANK, which goes whilſt it is wound up, and is tolerably good, conſidered as a ſale watch ſent to *India*.

The teleſcope had a double object glaſs, with a braſs ſtand, and was made by GREGORY; it magnifies 80 times; but, like all of this conſtruction, that I have ſeen, it had a dark ſpeck in the middle, and was not equally good in the whole field.

In the way back, we had a land quadrant, of 15 inches radius, made by B. MARTIN, and ſent out by the *India* Company. It was uſed by Mr. HURST in the tranſit of *Venus*. This could not be inverted. But, to deſtroy the effects of collimation, and error of level, the latitudes are all determined by ſtars taken north and ſouth of each place, as the obſervations will ſhew.

T. D. PEARSE.

JUPITER'S FIRST SATELLITE.

IMMERSIONS.

Date.	Apparent Time. correct. H. M. S.	Time by Ephemeris. H. M. S	Longitude. H. M. S.	
1774, 14th Oct.	12.32.25	6.39.00	5.53.25	Jupiter very near the vertical, and the glass shook much.
23d do.	8.57.15	3.03.17	5.53.58	
1776, 13th Nov.	13.58.56,3	8.04.46	5.54.10,3	
29th.	12.09.39	6.15.53	5.53.46	
6th Dec.	14.00.32,6	8.06.38	5.53.54,6	
13th.	15.50.59.3	9.57.02	5.53.57,3	
15th.	10.18.31	4.24.35	5.53.56	
22d.	12.08.47,6	6.14.50	5.53.57,6	
31st.	8.26.54,1	2.32.49	5.54.05,1	
1777, 16th Jan.	8.51.19,6	2.57.11	5.54.08,6	
27th Dec.	9.38.58,8	3.45.01	5.53.57,8	*Dollond*'s triple object glass.

EMERSIONS.

1774, 29th Dec.	11.25.47	5.31.52	5.53.45	
1777, 30th Jan.	12.36 11,8	6.42.30	5.53.41,8	
1778, 15th March	8.40.49,6	2.47.41	5.53.08,6	*Dollond*'s triple object glass.
7th April	9.00.02,2	3.07.00	5.53.02,2	Ditto.
14th.	10.56.35,1	5.03.30	5.53.05,1	Ditto.
1779, 3d May	12.07.38,8	6.14.37	5.53.01,8	Ditto.

SECOND SATELLITE.

IMMERSIONS.

1776, 4th Dec.	10.53.23,5	4.58.08	5.55.21,5	
11th.	13.25.50.4	7.30.42	5.55.08,4	
18th.	15.58.21	10.03.14	5.55.07,0	
29th.	7.48.01,4	1.52.27	5.55.34,4	
1780, 11th July	9.34.17,3	3.41.33		Emerged from behind the body 9.27.04.3, and was quite clear of the body at 9.28 55.3. *Dollond*'s triple object glass

EMERSIONS.

1778, 25th Dec.	8.47.41.7	2.53.18	5.54.23,7	
1777, 23d Jan.	7.32.41.3	1.37.41	5.55.03,3	
29th April	7.20.34,1	1.25.43	5.54.51,1	
6th May	9.59.28,9	4.04.11	5.55.17,9	
1779, 8th May	11.45.53.5	5.52.13	5.53.40.5	Here the tables seem to have been corrected. *Dollond*'s triple object glass.

THIRD

THIRD SATELLITE.

Date.	Apparent Time corrected. H. M. S.	Time by Ephemeris. H.M.S.		
1774, 10th Nov.	13.12.30	7.18.17	Emerſion.	
1775, 28th Jan.	7.28.58,5	1.33.45	Immerſion.	
	9.04.21	3.07.49	Emerſion.	But I thought I ſaw it about a *minute* before; however it was ſo very dim that I cannot be certain.
1776, 3d Nov.	10.55.20,2	5.00.14	Emerſion.	
17th.	15.31.51,3	9.42.37	Immerſion.	
23d Dec.	11.10.33,6	5.19.58	Immerſion.	
1777, 28th Jan.	10.13.13,2	4.22.53	Emerſion.	
1778, 3d April.	9.21.24,9	3.33.12	Do.	I think I might have ſeen it earlier if I had expected it to emerge at a greater diſtance than one Satellite appeared, which was the caſe. *Dollond's* triple object glaſs.
1779, 2d May.	8.44.37,5	2.54.27	Immerſion.	Rather doubtful
	45.26,5			I thought I ſaw it, but *Jupiter* was ſo very bright it dazzled my eyes.
	11.32.30,6	5.44.27	Emerſion.	

FOURTH SATELLITE.

1776, 2d Nov.	13.23.14,0	Emerſion.	
1777, 8th Jan.	9.28.49,5	Immerſion.	
25th	7.23.02,0	Emerſion.	At the time of this obſervation, there was a very ſmall ſtar a very little to the weſt of the weſtern-moſt Satellite.
1778, 9th May.	8.25.13,0	Emerſion.	*Dollond's* triple object glaſs.

Other

Other Obſervations of Jupiter *and his Satellites.*

1776, 22 November, between nine and ten, I ſaw a very ſmall ſtar, not bigger than a Satellite, very near to *Jupiter*. The configuration thus,

At 12h. 9′. 39″. the configuration was thus,

that is, the two outermoſt Satellites had gone forward, and *Jupiter* back, in right aſcenſion, viſibly.

30th November the configuration was thus,

that is, the ſtar was north; diſtant from the limb in declination about the quantity of the leſſer axis. In right aſcenſion the ſtar was advanced further than *Jupiter's* center, about a fifth of the axis. Some time after I found that the little Satellite, which was below the limb, had immerged into the diſk; and ſoon after I ſaw the ſhadow of that Satellite upon the Great Belt. I obſerved the ſhadow go off the diſk; and about an hour after that, the Satellite emerged a little to the north of the

the Great Belt. The times were noted, but the book was deſtroyed by accident. When *Jupiter* paſſed the meridian, I could not ſee the ſtar in the tranſit teleſcope; but about 4′ afterwards the configuration was thus,

that is, a line drawn from the ſtar to *Jupiter's* center, made an angle with the Great Belt, which I judged to be about 41°; and in that direction it was about the quantity of the leſſer axis diſtant from the limb; ſo that *Jupiter* had moved back about $\frac{3}{4}$ of his diameter from the time I firſt ſaw him to-night till he paſſed the meridian.

1776, 8th December, my clock was ſtopped by an earthquake, which ſpoilt the obſervation of the immerſion of *Jupiter's* firſt Satellite.

1776, 23d *December, an Emerſion of the firſt Satellite from the Diſk.*

	Apparent Time correct.
The ſhadow touched the middle of the edge of the Great Belt, and made a viſible notch in it - -	h ′ ″ 11.26.00
It was ſtill viſible - - - -	28.05
It vaniſhed - - - - -	30.50
Satellite at the edge of the limb - -	53.25
In contact emerged - - -	58.53

1777, 25th January, 7h.23′.00″,6, I ſaw a ſmall ſtar a little to the weſt of the weſternmoſt Satellite, not ſo bright

bright as either of them; it was hardly visible through the reflector.

Configuration thus,

26th, I could not find the star at 7h. 11m.

29th May, *Jupiter's* second Satellite immerged behind the disk - - - - h , ″ 7.25.18,7

1779, 2d *May, an Immersion of* Jupiter's *first Satellite into the Disk.*

Apparent Time correct.

	h , ″
In contact - - - - -	11.31.37,6
Immersion doubtful - - -	35.19,6
certain - - -	35.50,6

If the immersions and emersions of this nature were calculated so as to set astronomers to look out for them, *Jupiter's* satellites might be rendered more useful than they now are in regard to longitudes by land; and that too, whether the calculations are accurate or erroneous.

For I mean to use an immersion or emersion of any kind, only to note an instant for taking the altitude of *Jupiter* at the place of observation.

If the instruments be of equal powers, and the eyes of equal strength, then certainly the altitudes will be taken

taken by every perſon, who ſhall obſerve the ſame phenomenon at one and the ſame inſtant of time; and thence the diſtance of *Jupiter* from the meridian of each will be known to ſeconds, if we ſuppoſe the latitudes known before-hand.

And if the teleſcopes of quadrants could be made ſufficiently powerful to obſerve the ſatellites, then a ſingle obſerver, at any place, could perform the whole without trouble or difficulty, and would only need a common watch, and a little more patience than would be requiſite if the watch were perfect, and calculation true.

But ſuppoſing the teleſcopes and quadrants as they are, and two obſervers at each place, one employed with the ſatellite, and the other with the quadrant, then the latter muſt carefully keep the body of *Jupiter* on the line of altitude till the other tells him to ſtop, which is to be done at the inſtant of obſerving the expected phenomenon.

By this mode a degree of longitude may be meaſured with as much accuracy as a degree of latitude; and it is what I have in contemplation to perform, as ſoon as I can get the requiſite inſtruments.

Remarks on ſome erroneous Obſervations of Jupiter's *firſt Satellite.*

In 1778, I took notice, that when *Jupiter* is very near the oppoſition, the obſervations are not to be depended on, and that the Satellite vaniſhed without changing colour. The ſame happened in 1779, 1780, and again in 1784, at *Beemulwiſa;* therefore I have put down the times of ſuch obſervations, as they are reduced to apparent time, from the known deviation of the clock from mean time. The tranſit inſtrument was examined

by ſtars that paſs over the zenith, and by others north and ſouth, and by equal altitudes; all which ſhewed it was as nicely in the meridian as it well could be.

In 1779, on the 3d of March, I obſerved η and μ Geminorum, and the deviation was the ſame as that derived from the tranſits of the ſun on the 23d February and 5th March. In the obſervation of the moon 23d November following, the accuracy of its poſition was aſcertained, ſo that the times were correct; and the errors depend on ſomething at the Satellite and planet. Perhaps *Jupiter's* atmoſphere may be ſo denſe as to prevent the free paſſage of the diminiſhed light ſoon after the beginning of an eclipſe, or even before it. If ſo, theſe obſervations may tend to clear up that point, and to meaſure the extent of that atmoſphere.

Date.	*Apparent Time cor. eſt.* H. M. S.	*Ephemeris* H. M. S.	
1778, 4th Feb.	7.51.10,3	1.58.08	
1779, 23d do.	9.02.51,0	3.10.01	
2d March	10.58.15	5.05.17	
9th do.	12.53.08	7.01.07	These two were obſerved at *Dumdum*; but the time was taken from the tranſit inſtrument by a watch, carried out before, and back after, and compared with the clock.
11th do.	7.20.35,3	1.30.10	
1780, 13th March.	10.10.47,7	4.20.23	

All theſe obſervations were made with *Dollond's* triple object glaſs.

Obſervations of Venus.

1776, 2d January, at 7h.55′, in the morning, I meaſured the diſtance between *Venus* and the *Sun* 46° 32′.

I was

I was informed the natives were viewing it with aſtoniſhment, but I did not ſee it with the naked eye. Through the little teleſcope of my HADLEY's quadrant it appeared as bright as *Capilla*.

	Apparent Time correct. h ′ ″
1777, 1ſt July, *Venus* paſſed the meridian	21.30.41,5
14th, *Venus* viſible to the naked eye, and has been ſo three days.	
Paſſed the meridian - - -	21.01.02,0

Diſtances from the Sun, meaſured with an HADLEY's *Quadrant.*

	h ′ ″
Weſt limb 41° 57′ - - -	21.21.58,5
Eaſt do. 42° 29′ - - - -	25.08,5
15th, Paſſed the meridian - -	20.59.29
16th, Ditto - - - - - -	58.08,5
17th, Still viſible.	

Diſtances meaſured as before.

		h ′ ″
From neareſt limb	42° 31′ - -	0.08.10
From furtheſt do.	43° 05′ - -	0.12.14

1780, 18*th March, an Appulſe of Venus to* Mars.

Inch. Non.		*Distances.* ′ ″			*Apparent Time correct.* h ′ ″
2,45,3	=	15 17,2	-	-	7·39·33,9
2,45,8	=	15.20,9	-	-	44·33,9
2,45,5	=	15.18,7	-	-	49·33,9

N. B. The ſcale of the micrometer is divided into twentieth parts of an inch, and the nonius ſubdivides theſe into twenty-five parts each.

The next morning the *Sun*'s diameters were measured.

	Inch.		*Non.*
Horizontal	5.15	"	07,25
Vertical	5,10	"	
Mean	5,15	"	06,625
Error of micrometer		+	4
	5,15	"	10,625

Sun's diameter by Ephemeris 32′ 11″,6, from which the diſtances were calculated.

19th March, Difference of Declinations, and right Aſcenſion.

Inch.	*Non.*				*Apparent Time correct.*
		′	″		h ′ ″
4,20	" 00 =	26.08,7	at	-	7.41.51,4
Mars paſſed the vertical wire				- -	43.09,4
Venus do. -	-	-	-	-	45.16,4

Mars was ſouth of *Venus*.

Obſervations of Mars.

An Appulſe of Mars to ϰ Libræ.

Diſtances. *Inch.*	*Non.*				
		′	″		
1,00	" 19 =	6.18,5	-	-	10.50.05
1,00	" 17 =	6.17,0	-	-	10.58.05

The ſtar was weſt of *Mars*.

Obſervations of the Moon.

1775, 12th *January, an Occultation of* Aldebaran.

	h ′ ″
Immerſion - - - -	8.54.55

I believe

I believe the watch was ſet by equal altitudes; but I have loſt the book in which the entry was made, and have only a copy of my obſervations as a regiſter of this and the next that follows.

15*th February, an Eclipſe of the* Moon.

End 10h.15′.00″,5, apparent time correct.

1776, 3*d March, an Occultation of* Regulus.

Not having an ephemeris at the time, the obſervation was accidental, and conſequently not prepared for. The tranſit inſtrument was but lately put up, and had not been much uſed, but it was the only reſource for time: accordingly, it was adjuſted truly as to level and wires, but it was not in the meridian accurately. Therefore the tranſits of ſeveral ſtars were taken to determine the poſition of the inſtrument, and the error of that being known, the times could be corrected by a very eaſy rule, which I ſubjoin. Let x be the error in ſeconds at the horizon, a and b the ſines of the zenith diſtances of two ſtars, A and B the ſines of the polar diſtances, d the difference of the errors of the clock, as found from the obſerved and the calculated tranſit of thoſe two ſtars. Then $\frac{x\ a}{A}$ will be the ſpace at the equator for the equation to correct one, and $\frac{x\ b}{B}$ the ſame for the other; and the ſum of theſe two will be equal to $d+15$. or, which is the ſame thing, $\frac{x\ a}{15\ A}+\frac{x\ b}{15\ B}=d$. Whence for all ſmall angles $x=\frac{15+d+A\ B}{a\ B+b\ A}$.

ζ and γ *Leonis* were the two ſtars that were relied on for time and poſition, becauſe they paſs ſo nearly at equal diſtances from the zenith, that the mean of their errors of the clock would be ſo near to the true one, that

that any clock yet invented could not ſhew the difference actually.

The difference of their errors was 5″,6, and thence the error of the tranſit inſtrument was only 246″,16 at the horizon, and the diſtance of the wires of the teleſcope is 1478″.

3d March.	*Times of paſſing the Middle Wire.*	*Equation for the Error of the Inſtrument.*	*Paſſage by Calculation.*	*Error of Clock.*
☽ Weſt Limb.	10.58.19,5	—15,08		
η Leonis.	11.01.45.0	— 7,16	10.54.56,8	6.41,04
α Leonis.	03.11	—14,07	56.15.0	6.41,03
ζ The Northern.	10.33			
ζ The Southern.	10.39	+ 3,01	11.04.00,6	6.41,41
γ The Southern.	14.04			
γ The Northern.	14.08	— 2,59	07 24	6.41,41
δ Urſæ Majoris.	13 08 48	+92,27	13.03.43.9	6 36.37
ε Urſæ Majoris.	48 40	+92,01	43.34	6.38,00
Immerſion,	14.02 39,5			
It was emerged, but I did not ſee the Emerſion.	52.30			

6th *March, Equal Altitudes, by a* HADLEY'S *Quadrant and Quickſilver.*

Quadrant.		h ′ ″	
30.00	riſing -	20.29.41	
	falling -	27.42.30	6.05,5
30.30	riſing -	20.32.14	
	falling -	27.39.56	6.05,0
		Mean -	6.05,25
	Equation of equal altitudes -		7,10
			5.58,15

This

This compared with the error of the clock by ζ and γ, ſhews that it was loſing 17″,06 daily; at which rate, to the time that ε Urſæ Majoris paſſed the meridian, it muſt have loſt 1″,95, and the error by ε ought to have been 6′39″,4. The difference is only 1″,4, which is not greater than the errors of obſervation may ſometime be in ſtars of great declination.

Result.	*Apparent Time correct.* h ′ ″
☽ Weſt Limb paſſed the meridian -	10.51.23
Regulus - - - - - -	56.15,5
Immerſion - - - - -	13.56.00,15

And emerged in leſs than 50′.

1776, 30th *July*, *an Eclipſe of the Moon.*

Beginning of total darkneſs.

	Apparent Time correct. h ′ ″
By eye - - - - -	17 00.49
By teleſcope - - - - -	01.16

Clouds prevented any other obſervations.

1777, 20th *January*, *an Occultation of* ζ Geminorum *by the* Moon.

	Apparent Time correct. h ′ ″
Immerſion - - - - -	13.37.38,6

23d *January*, *an Eclipſe of the Moon.*

	Apparent Time correct. h ′ ″
Eclipſe began - - - - -	8.41.21,7
Shadow well defined - - - -	44.33,7
Mare Humorum touched - - -	49.13,7
Grimaldus do. - - - - -	50 43,7

Grimaldus

	Apparent Time correct. h , "
Grimaldus paſſed - - - -	53 18,7
Mare Humorum do. - - - -	2 33 33,7
Tycho's dark circle touched - -	56.13,7
Tycho's body do. - - - -	56.40,7
Copernicus do. - - - -	9.26.28,7
Do. paſſed - - - - -	33.23,7

Going off again.

Copernicus paſſed - - - -	10.12.58,5
Grimaldus do. - - - -	21.23,5
Mare Humorum touched - - -	36.17,5
Ariſteus paſſed - - - -	37.33,5
Mare Humorum do. - - - -	47.23,5
Regiomontanus do. - - - -	11.00.08,5
Tycho's body - - - - -	02.33,5
Tycho's dark circle paſſed - - -	05 38,5
Vendelin do. - - - -	12.23,5
Faint Penumbra remained - - -	32.25,5
Limb clear. End - - - -	33,33,5
☽ Weſt limb paſſed the meridian -	12.03.22,7
Eaſt do. do. - - - - -	05.38,2

The times are thoſe of the ſhadow's edge, unleſs it be otherwiſe expreſſed.

1777, 13th *February, an Occulation of* μ Ceti.

	Apparent Time correct. h , "
Immerſion - - -	7.53.46,7

I was very certain of the time of the immerſion. Five ſeconds before it the ſtar began to change colour, and to loſe light ſenſibly: one ſecond before the immerſion,

merſion, it was conſiderably broader and redder than at firſt, and the light was not ſo ſtrong as before.

This ſupports the ſuppoſition of an atmoſphere round the moon, though it does not extend to any great diſtance. It has been doubted, and is, I believe, not yet abſolutely admitted. But our atmoſphere may be doubted by an inhabitant of the moon; for if to its greateſt extent, ſuppoſed 45 miles, it were of the ſame denſity as at the ſurface of the earth, which is not the caſe, it would not ſubtend a minute, as the earth is 8000 miles in diameter, and the greateſt parallax only 62′.

1777, 16*th May*, *an Appulſe of the* Moon *to* ν Scorpii.

	Apparent Time correct. h ′ ″
☽ Weſt limb paſſed the meridian -	7.59 50,1
γ Scorpii do. - - - - -	8.00.02,1

By the arch of the tranſit inſtrument, the ſtar was 10′ from the limb.

1779, 1*ſt May*, *an Appulſe of the* Moon *to* Mars *and* Saturn.

Having brought the *Moon's* limb to run along a wire of declination,

	Apparent Time correct. h ′ ″
The eaſtern limb paſſed the vertical wire	10.23,09,5
Saturn paſſed the ſame - - -	10.23.21,5

Saturn did not come within the ſcale of the micrometer.

For the right Aſcenſions.

	Apparent Time correct. h ′ ″
Mars, *Saturn*, ☽ Eaſtern limb — Paſſed the meridian at	12.55.42 56.34

Diſtances

Distances of the Moon *and* Mars.

Inch. Non.	′ ″		Apparent Time correct. h ′ ″
4,70 „ 08,5	= 28.40,3	——	13 [illegible]
4,65 „ 21	= 28,31,1	——	29.34,5
4,65 „ 15	= 28.26,7	{ Mean of the three times and the same measure. }	31.53,5
4,65 „ 21	= 28.31,1	——	36.49,5
4,70 „ 05	= 28.37,7	——	41.06,5

1779, 3*d May, an Appulse of the* Moon *to* β Ophiuchi.

Difference of Declination.

Inch. Non.	′ ″		Apparent Time correct.
4,70 „ 17	= 28.09,9	——	10.22.58,1

The star was to the west of the *Moon's* horn from which the distance was measured, because the micrometer could not take in the limb.

Inch. Non.	′ ″		Apparent Time correct.
4,60 „ 17	= 28.09,9	——	10.22.51,1

Examination of the Micrometer.

	h ′		Inch. Non.
1st May,	19.29.	lesser diameter of the *Sun*	5,2 „ 13
		Again - - -	5,2 „ 15
		Greater diameter -	5,2 „ 23
		Again - - -	5,2 „ 24
		Hence mean diameter	5,2 „ 17,5

There are twenty-five nonius to divide one twentieth of an inch.

When the limbs coincided the zeros agreed.

The ephemeris gives 15′.54″,6 for the semi-diameter, therefore one nonius is equal to 0″,7294.

1779, 23*d November, an Eclipse of the* Moon.

	Apparent Time correct.
Beginning - - - - -	12.02,33,0
Shadow well defined - - -	03.36,9
Aristarchus - - - -	10.37,1

Insula

	Apparent Time correct. h ′ ″
Inſula Ventorum - - -	12.14.32,9
Copernicus - - - -	21.18,9
Mare Vaporum - - - -	32.07,8
Bright ſpot in Mare Vaporum -	34.27,7
Tycho's body touched - -	35.29,7
Mare Serenitatis, do. the border -	35.47,7
Tycho paſſed - - -	36.52,7
Mare Tranquillitatis touched -	40.17,6
Ariadæs - - - -	41.37,6
Mare Serenitatis paſſed - -	44.07,6
Meerob - - - -	51.37,5
Mare Criſium touched - -	52 37,5
Do. paſſed - - -	56.40,4
Total darkneſs by eye - -	13.00.37,5
By teleſcope - - -	01.41,3
Do. end by teleſcope - -	14.40.13,3
By eye - - - -	41.16,3
Grimaldus paſſed - - -	43.06,3
Ariſtarchus - - -	50.42,2
Inſula Ventorum touched - -	53.46,2
Paſſed - - - -	54.20,2
Copernicus - - -	15.02.44,1
Tycho's body touched - -	04.56,0
Paſſed - - - -	06.23,0
Mare Criſium touched - -	32.22,7
Paſſed - - - -	35.55,7
Mare Fæcunditatis paſſed - -	37.23,6
End by teleſcope, doubtful -	39.45,6
Certain - - - -	42.00,6

The apparent times here noted in these observations, were derived from the mean times, the difference between the clock and mean time being applied to the hours shewn by the clock; and as the difference of equation was derived from the transit instrument, here follows an examination of its position.

	Transits over the middle Wire by Clock.	*Difference between the Clock and mean Time.*
22d November	h / //	
⊙ West limb	23.42.34	
East do.	44.53	
Center	23.43.43,5	
Eqtn. time	0.13.19,5	
		—2'.57" to be added to all the transit hours.
23d November		
α Arietis	9.42.02	
☽ West limb	11.38.28	
☽ East do.	40.51	
Rigel	12.50.41	
Bellatrix	13 00 01	
Castor	15.06 51	
Procyon	14.05	
1st December		
⊙ West limb	23.45 26	
East do.	47.47	
Center	23.46.36,5	
Eqtn. of time	10.17,7	/ // —3.05,8

Equal Altitudes with the Quadrant which has only one Wire.

N. B. Before and after this last transit.	*Another altitude not moved.*
h / //	h / //
Rising ☉ limb 20.16.41	20.23.47
☉ limb 20.19 38,5	20.26.46,5
Falling ☉ limb 27.13.27	27.06.17
☉ limb 27 16.23	27.09.19
Center 23.46.32,4	23.46.32,4
Equation of equal altitudes	+ 4.37
	23.46.36,77

1780,

Apparent Time correct.

		h , "
1780, 18th February,	☽ East limb passed the meridian	10.39.31,6
15th April,	☽ West limb passed the meridian	9.17.34

5th August, an Appulse of the Moon *to* Jupiter.

☽ West limb passed a circle of the meridian	7.14.44
Jupiter's western limb	14.48
Eastern do.	14.58
Center	18.49
☽ West limb	00.53
Jupiter's center	25.06
☽	25,19
Jupiter's center	42 31
☽	43.08
Jupiter	51.21
☽	52.15
Jupiter	8.42.22
☽	44.42
The difference of declination of *Jupiter* and the nearest horn of the *Moon*, was 9'.01",4	7.28.40

Distances of Limbs.

' "	
14.33,2	7.32.12
15.01,5	35.36
15.32,7	38.53
16.25,9	44.31
17.06,5	48.16
30.58,6	8.35.49

OBSERVATIONS

OBSERVATIONS *at large for determining the Latitude of the* TREASURY GATE *in* FORT WILLIAM *in* BENGAL.

	Face East.	Face West.	Mean or observed Altitude.	EQUATIONS. Refraction.	Aberration. +	Nutation. −	Altitude correct.	Declination.	Latitude.	
	° ′ ″	° ′ ″	° ′ ″	″	″	″	° ′ ″	° ′ ″	° ′ ″	
γ Tauri	89.57.37,3	89.58.16	89.57.56,6	0	2,34	0.43	89.57.54,7	22.30.56,4	22.33 01,7	N. B. Face east 15th Jan. 1779, when the barometer was 30,05, and the thermometer 63 5.
τ Tauri	88,41.47	88.42.28	88.42.07,5	1,2	0,82	0,63	88.42.06,5	21.15.26,2	19.7	
o Tauri	89.09.49,7	89.11.04	89.10.26.9	0,7	0,05	0.39	89.10.25,1	21.43.46,5	21,4	
ζ Tauri	88.25.48,8	88.26.45,0	88 26.16,9	1,4	0,7	0,7	88.26.16,9	20.59 28	06,1	
132 Tauri	88.05.07,9	88.04.17	88.04.42,5	2,9	1,11	1,05	88.04.41,8	24.28 25.9	07.7	
H Geminorum	89.18.11,7	89.17.08	89.17.39,8	0,6	0,16	1,49	89.17.39,8	23.15.25.3	05,1	
μ Geminorum	89.57.17,3	89.55 58,0	89.56.37,6	0	0,44	2,03	89.56.40,4	22.36.32,7	[illegible]	Face west 19th Jan. when the barometer was 30,05, and the thermometer 65, agreeably to which the refraction is taken.
ν Geminorum	87.46.28,2	87.47.17	87.46.52,6	2,2	0,84	2,6	87.46.53,8	20.20.00,3	[illegible]	
								Mean	22.33.09,4	

Aldeberan	83.29.09,7							
Rigel	58.57.52,2							
α Orion	74.47.00							
γ Geminorum	84.00.29,9							
Syrius	51.00.43,5							
Capella		66.47.18						
β Tauri		84.08.43						
136 Tauri		84.59.37,1						
θ Aurigæ		75.21.42.8						
Geminorum		87.12.30						

6,7	+ 0,82	− 0,63	89.29.03,2	16.02.58 N	22.33.54,8		
33,7	− 5,1	+ 0,12	58.57.13,8	8.28.15,9 S.	34.30.3		
15,3	− 2,2	+ 1,28	74.46.43,8	7.20.57 N.	34.13,8		
6,0	+ 2,5	+ 2,00	84.00.28,4	16.34.11 N.	33.47,6		
45,5	+ 4,6	− 2,75	51.00.00	16.25.04,3 S.	34.15.7		
				Mean	22.24 07.4		
23,5	+ 6,8	− 0,06	66.47.00,3	45.45.12,5	22.32.12,8		
5,6	+ 2,4	+ 0,37	84.08.40,2	28.24.08	48,2		
4,8	+ 1,2	+ 1,2	84.59.34,7	27.32.27,1	01,8		
15,0	+ 2,4	+ 1,2	75.21.31,4	37.10.34	05.4		
2,9	− 0,4	+ 2,6	87.12.29 3	25.19.52,4	11.7		
				Mean	22 32.16		
				Mean of the last two sets	22 33 11,7		
				Double collimation or difference of the last two sets	1.51.4		
				Latitude by the whole	22.33.10,55		

TRIVATOORE.

Observations by T. D. P. 1783.

	Day	h ′ ″	′ ″
⊙On the meridian, Dec. 5th,		23·33·52,5	flow 26.07,4
⊙On the meridian, Dec. 6th,		23·35·53,1	flow 24.06,9
Daily gain,		- -	2.00,6

The equation of equal altitudes was applied.

An Emerſion of Jupiter's *firſt Satellite.*

	h ′ ″
6th Dec. by watch emerged	6.31.53
Too ſlow at noon	+26.07,3
Gain till obſervation	34,4
Emerſion	6.57.25,9
Ephemeris	1.36.52,0
Longitude in time	5.20.33,9
in degrees	° 80.08.28,5

		′ ″
⊙On the meridian, Dec. 28	23.26.37	
Equation of E. A. - -	1,9	
	26.29.35,1	flow 33.24,9

On

	h ′ ″	
⊙ On the meridian, Dec. 30	23.23.40,3	
Equation of E. A. - - -	1,9	
	23.23.38,4	flow 36.21,6

Daily loſs 88″,4

An Emerſion of Jupiter's *firſt Satellite.*

	h ′ ″
29th of Dec. by watch emerged - -	6.27.07
Too ſlow at noon - -	33.24,9
Loſs till obſervation at 88″,4	25,8
Emerſion	7.06.57,7
Ephemeris	1.40.44,0
Longitude in time	5.20.13,7
° in degrees	80.03.24,6
The mean of the two longitudes	80.05,56,5

The diſtance between the flag in the fort, and the place of obſervation at *Trivatoore*, was determined by a long baſe meaſured in the ſands, and by taking angles for trigonometrical calculations.

Madras flag, diſtance	-	2787,1 feet.
Bearing	S.	10.33.50 W.

	′ ″
Which gives difference of Longitude	50,5
Latitude	4.30,7

VIPEREE.

Having borrowed the quadrant that Mr. HURST uſed in the tranſit of *Venus*, I was deſired not to alter its

line of collimation till I had determined the quantity of error: thoſe obſervations are in the tables of latitude. It was uſed in the ſurvey to *Calcutta*.

As I intended to obſerve at this place, I determined its diſtance from the fort as accurately as I could by trigonometry. The reſult is:

Madras flag, diſtance - 8072,2 feet
bearing S. 23.15,00 E.

Which gives difference of Latitude 31″,5

MADRAS.

		° ′ ″
Latitude of *Trivatoore*, ſee table	-	13.09.00,4
Madras ſouth of it	-	— 4.30,7
Latitude		13. 4.29,7
Latitude of *Viperee*, ſee table	-	13.05.05,4
Madras ſouth of it	-	— 31,5
Latitude		13.04.33,9
Mean 13.04.31,8		
Longitude of *Trivatoore*, Mean	-	80.05.56,5
Madras weſt of it	-	— 00.50,5
Longitude		80.05.06,0

WUNGOLE, 1782, *commonly called ONGOLE.*

Obſervations by T. D. P.

14th November, double altitudes of the pole, with the ſmall ſextant made by RAMSDEN, and the artificial horizon.

Watch

Watch.	*Angles.*	
9.16.12	34.45.30	} these were with the small sextant.
21.00	47 30	
31.00	45.30	
49.00	46.30	this was with the large sextant.
9.29.18	34.46.15	

17.23.08	
+ 2.40	* beneath meridian.
— 2.58	refraction.
17.22.50	meridian altitude.
1.51.13	polar distance.
15.31.37	Latitude.

16th November, with the octant double altitudes of the *Sun*.

	Upper L.	*Lower L.*
	° ′ ″	
12.00.28	111.51.00	
2.24	54.00	
4.14		° ′ ″ 110.48.20 M. A.
5.41	111.56.00 M. A.	
6.36		110.47.00
Observed altitude		55.41.05
Ref. and par.		— 34
Meridian altitude correct		55.40.31
Declination S.		18.49.05
Co. Latitude		74.29.36
Latitude		15.30.24

1784, The Latitude obſerved by T. D. P. (ſee obſervations at large) was

This is inſerted only to bring to teſt the accuracy of the octant, which is mentioned (page 58) in the Introduction: and it appears that, by a ſingle obſervation made with it, the Latitude was determined within 1′.8″.

It ſerves alſo to ſhew that, though it is very difficult to take double altitudes of ſo faint a ſtar, in low latitudes, even the polar ſtar may be uſed to great advantage: and in theſe hot climates the ſtars only can be employed, for the *Sun's* heat at noon, after a long march, is really not to be borne by any conſtitution.

MASULIPATAM, 1782, *by* T. D. P.

27th Oct. ⊙ diameter forward 33, backward, 32, } then set the speculum to 90°, and shifted the index back.

Double altitudes of the *Sun's* lower limb, taken with the HADLEY's octant and the artificial horizon.

Watch.	*Angles.*	
h ′ ″	° ′ ″	
12.19.21	120.52.20	
20.32	120.55.20	
28.17	121.21.00	
30.40	121.23.30	
31.38	121.24.00	
32.34	121.25.40	meridian.
34.23	121.23.20	

Obſerved

Obſerved meridian altitude - L. L.		60.42.50
Error of quadrant - -		— 30
Semi-diameter - - -		+ 16.10
Ref. and par. - - -		— 27
Altitude -		60.58.03
Declination S.		12.51.09
Co. Latitude		73.49.12
Latitude		16.10.48

28th October, quadrant the ſame as above.

The mode the ſame, double altitude	120.45,00
Meridian altitude correct - -	60.37.42
Declination - - S.	13.11.55
Co. Latitude	73.49.37
Latitude	16.10.23

1ſt Nov. ⊙ diameter 34 forwards, 33 backwards, } then ſet the ſpeculum to 90°.

Time.	*Upper L.*	*Lower L.*
h ′ ″		
12.14.56		
	119.13.10	
15.33		118.04.30 M. A.
16.11	119.14.50 M. A.	

Obſerved meridian altitude - - -	° ′ ″	59.19.50
Ref. and par. - -		— 30
Error of quadrant -		— 30
Meridian altitude		59.18.50
Declination - S.		14.30.45
Co. Latitude		73.49.35
Latitude		16.10.25

The

The ſame day Lieutenant HUMPHREYS obſerved with a ſextant made by RAMSDEN, about four inches radius: he made the angles of the lower limb 118°.09′.00″; and the error of his quadrant was—2′, which gave the latitude 16°.11′.05″. This was intended as a kind of teſt of the inſtruments, but it was not a fair one, and yet the reſult is cloſer than could be expected, conſidering the difficulty of reading the ſmall one.

Mean of three latitudes with octant 16°.10′.32″

		h ′ ″		′ ″
⊙ On Meridian,	Oct. 29th,	00.04.56	too faſt	4.56
By the ſmall watch	——30th,	00.08.36,5		8.36,5
	——31ſt,	00.12.37		12.37
	Nov. 1ſt,	00.16.36,5		16.36,5

Examination of the large watch uſed at the obſervation of *Jupiter's* Satellite.

29th October, altered the ſpring, and ſet it a-going at one o'clock.

	Small Watch.	*Large Watch.*
	h ′ ″	
Octo. 29th	22.37.00	
Too faſt	8.23,2	
Solar time	22.28.36,8	h ′ ″ 22.34.42 too faſt 6.05,2
	h ′ ″	
Nov. 1ſt	1.46.00	
Too faſt	0.16.54	
Solar time	1.29.06	1.35.57,5 too faſt 6.51,5

Therefore in 51 hours ſolar time the large watch gained 46″,3.

An

An Emerſion of Jupiter's *firſt Satellite.*

		h ′ ″
1ſt November,	by watch emerged - -	7.27.20
	At laſt obſervation, too faſt	—06.51,5
	Gained afterwards at 46″,3	— 05,3
	Emerſion	7.20.23,2
	Ephemeris	1.56.15
	Longitude in time	5.24.08,2
	in degrees	° 81.02.03

The obſervations before written were made at the Chief's garden. The Fort flag was diſtant 2′.5″ in a ſtraight line, and bore S. by E. which gives difference of

	′ ″
Longitude - - -	+0.30
Latitude - - -	—2.28
Longitude of Gardens	81.2.03
	+30
Longitude of Flag	81.2.33
Latitude of Gardens	16.10.32
	— 2.28
Latitude of the Flag	16.08.04

PEDDAPOORE, 1784.

Obſervations by T. D. P.

	h ′ ″
α *Serpentis,* on the meridian, June 18th -	9.36.45
Ditto 19th -	9.28.57,5
	·47,5
Acceleration for the time	4.09,4
Loſs in one day	3.38,1

⊙ On

	h ′ ″
⊙ On the meridian, June 18,	23.51.47,75

An Immerſion of Jupiter's *firſt Satellite.*

The Planet was extremely bright, and the Belts diſtinct and clear; the glaſs perfectly ſteady

	h ′ ″
19th June, by watch changed colour	15.16.22
Immerged	15.18.38
Too ſlow at moon	+ 8.12,25
Loſs to obſervation at 219	+ 2.21
Immerſion	15.29.11,15
Ephemeris	10.00.13
Longitude in time	5.28.58,25
	°
in degrees	82.14.34

From the obſervations at *Calcutta*, it appears that there is a difference between the Longitudes derived from obſervations of immerſions and emerſions.

	′ ″
The mean of Longitudes, 10 in number, derived from obſervations of immerſions, with an 18 inch reflector, was	5·53·53,77
Of emerſions (2) with the ſame inſtrument, was	5·53·43, 4
The ſingle emerſion with *Dollond's* triple object glaſs is	5·53·57, 8
The mean of 4 emerſions with the ſame	5·53· 3, 9
Difference by the reflector	0. 0.10,77
By *Dollond's* ditto	0.00.54,90
The mean of all the immerſions (11)	5·53·54,13
Emerſions (6)	5·53·17, 4
Difference	36,73

As

As the glaſs with which the obſervation was made differed from both, the difference derived from the whole is to be preferred, and ſo 9′.25″ are to be ſubtracted from this, to compare it with the other places, which were all emerſions, and then the longitudes of *Peddapoore* by emerſions will be 82°.05′.19″.

KOSSIM KOTTA, 1782.

Obſervations by T. D. P.

9th October, double altitudes of *Jupiter* from the artificial horizon.

h ″ ″	° ′ ″		h ′ ″
7.47.00 —	55.10.00		
48.36 —	54.28.50	*Jupiter's* R. A. at the time	17.32.06,7
			° ′ ″
49.57 —	54.01.20	Declination ditto S.	23.12.10
50.58 —	53.37.10	⊙ R. A. at ditto	13.00.24,8
52.02 —	53.13.10	Latitude - -	17.42.30
53.05 —	52.50.00	Derived from the obſerved Latitudes of *Elmulchillie* and *Sobaurum*.	
7.50.16 Mean,	26.56.43	Apparent altitude.	
	— 1.51	Ref.	
	26.54.52		

From the above data the planet had paſſed the meridian - - - - - - - h ′ ″ 3.16.37,3

Jupiter's R. A. 17.32.06,7

20.48.44

⊙ R. A. 13.00.25

Time 7.48.19

Watch 7.50.16

Too faſt 1.57

The watch gained 12″ daily by the meridian of *Vizacpatam*.

An

An Emerſion of Jupiter's *firſt Satellite.*

	h ′ ″
9th October, by clock emerged	7.11.45
Too faſt at the obſervation	— 1.57
Emerſion	7.09.48
Ephemeris	1.38.00
Longitude in time	5.31.48
	°
in degrees	82.57.00

VIZACPATAM, 1782.

Obſervations by T. D. P.

An Emerſion of Jupiter's *ſecond Satellite.*

	h ′ ″
3d October, emerged -	8.30.58
Ephemeris	2.57.20
Longitude	5.33.38
° ′ ″	
83.24.30	

An Immerſion of Jupiter's *third Satellite.*

	h ′ ″
7th October, immerſion	8.9.57

The time was ſhewn by Mr. RUSSELL's time-keeper, which was made by ARNOLD, and was regulated by the meridian line in his hall.

7th September, an Emerſion of Jupiter's *firſt Satellite. by* T. D. P. 1784.

	h ′ ″
7th September, by watch emerged - -	8.23.38
Sky remarkably clear, and glaſs ſteady.	
Full ſplendor - - - - - - -	25.40

Obſervations

Observations for Time.

			Zenith Distance.
	h ′ ″		o ′ ″
7th Sept. ⊙ U. L.	22.22.25	By arch of 90	41.29.20
	24.48	*D. S. D. Non.* 96	44.01.01
Lat. by 2 northern ſtars	See obſervations at large under *Vizacpatam*.		17.44.33,4
2 ſouthern ſtars			17.38.46,5
N. B. Refraction + 50″		True Latitude	17.41.45
		Error of collimation	+ 02.58
⊙ Declination for the time and place N.			5.30.39
			h ′ ″
From the above data the time was			21.17.15,5
By the watch			20.23.36,5
		The watch too ſlow	53.39

	Middle Wire.	*Upper Wire.*	
	h ′ ″	h ′ ″	
8th Sept. α *Aquilla* riſing	7.01.13	7.03.16	
falling	8.07.35	8.05.30	
			h ′ ″
On the meridian	7.34.24	7.34.23 =	7.34.23,5
Paſſage by calculation			8.29.55,5
		Watch too ſlow	55,32

8th September, ⊙ Zenith Diſtance.

		D. S. D. Non.	*Zenith Diſtance.*
	h ′ ″		o ′ ″
⊙ L.	19.13.55	90 ———	56.59.20
⊙ U.	16.06	96 60.03.05 ——	56.59.23
U.	16.49	90 ———	56.18.20
L.	19.00	96 60.00.07 ——	56.18.04,6
U.	21.57	90 ———	55.05.00
L.	24.09	96 58.03.00 ——	55.04.41,2
U.	25.18	90 ———	54.18.00
L.	27.28	96 57.03.20 ——	54.17.12,7
	19.20.20	Mean	55.40.00,3

⊙ Declination

⊙ Declination N.	5.09.42
Latitude	17.41.45
From the above data time	20.1.30
Watch	19.20.20
Watch ſlow	57.10

Therefore the watch loſt in 22.57 211,0
And conſequently daily - 221,0

Day					
8	at 7.34.23.5	watch too ſlow	55.27.9		0.55.32,0
7	at 8.23.38	the emerſion happened			
Difference	23.10.45,5	Loſs in this time at 221,			—3.33
		Therefore ſlow at emerſion			51.59
		Emerſion by watch			8.23.38
		Time of emerſion			9.15.37
		Ephemeris			3.42.56
		Longitude in time			5.32.41
		in degrees			83.10.15

October 23d, an Obſervation of Jupiter's *firſt Satellite, by Mr.* MAXTON.

The glaſs the ſame as mine; and the watch corrected by Mr. RUSSELL's meridian line.

Emerſion by watch	10.5.30
Watch faſt	— 6.05
Emerſion	9.59.25
Ephemeris	4.26.08
Longitude in time	5.33.17
in degrees	83.19.15

This

This was the inſtant of firſt appearance, as well as Lieutenant COLEBROOKE's, who obſerved the ſame at *Vizianagarum* Palace.

	° ′ ″
Longitude by T. D. P.	83.10.15
by M. - -	83.19.15
Mean	83.14.45

Mr. RUSSELL alſo made an obſervation, which I do not uſe, becauſe he noted the time of full ſplendor, which is uncertain: it follows:

	h ′ ″
16th October, Watch faſt at noon -	1,43,5
gained daily 56″,5	
Add its gain to the obſervation	18,5
Watch faſt	— 2.02
Time of full ſplendor	8. 4.39
Time of obſervation	8. 2.37
Ephemeris	2.29.17
Longitude in time	5.33.20
in degrees	83.20.0

BEEMULWILSA, 1784.

Obſervations by Lieutenant COLEBROOKE.

	h ′ ″		′ ″
On Meridian, Aug. 7th	23.40.23,15		
Equation of E. A.	+,60		
	23.40.23,75	ſlow	19.36,25

On

	h ′ ″
⊙ On Meridian, Aug. 12th	23.22.30,5
Equation of E. A.	+ 0,75
	23.22.31,25
flow	37.28,75
Loſs in 5 days	17.52,50
Daily loſs -	3.34, 5

An Immerſion of Jupiter's *ſecond Satellite.*

This was with his firſt obſervation.	h ′ ″
8th Auguſt, by watch immerged	12.33.20
Too ſlow at noon	19.36,25
Loſs to the obſervation, at 214″,5	1.55. 2
Immerſion	12.54.51,45
Ephemeris	7.20.50
Longitude in time	5.34.01,45
in degrees	° 83.30.15,00

Auguſt 13*th*, *by* T. D. P.

	h ′ ″
Jupiter's firſt Satellite vaniſhed by the watch	11.32.28

6 or 8 ſeconds before the time noted, it had not changed colour: a cloud came on, and hid it for about 8 ſeconds, and when it was gone, the Satellite had vaniſhed.

Auguſt 20*th*, *by* T. D. P.

	h ′ ″
Jupiter's firſt Satellite vaniſhed by the watch	14.2.30

The ſky was clear, the glaſs ſteady. Here I expected what happened, and was on my guard. The Satellite vaniſhed at a ſmall diſtance from the body, *i. e.* before the contact, and without changing colour.

On

	Day	h	′	″	
⊙ On Meridian, Aug.	19th	23	57	13,25	
Equation of E. A.		+	1,	5	
	19th	23	57	14,75	flow 2.45,25

Immediately before this obſervation, the watch was ſet forward one hour without ſtopping. By comparing this with the obſervation of the 12th, the watch loſt daily 3′.36″,6.

The foregoing obſervation of time is only of uſe for the erroneous immerſions of the 13th and 20th.

	Day	h	′	″	
⊙ On Meridian, Aug.	27th	23	41	26,5	
Equation of E. A.		+		2,1	
	27th	23	41	28,6	flow 18,31,4
⊙ On Meridian, Aug.	29th	23	35	17,5	
Equation of E. A.		+		2,4	
		23	35	19,9	flow 24.40,1

Daily loſs 3′.04″,4

An Emerſion of Jupiter's *firſt Satellite, By Lieut.* COLEBROOKE.

	h	′	
29th Auguſt, by watch emerged	12	27	00
Too flow at noon after the obſervation	+	24	40,1
Loſs after the obſervation	—	1	25,5
Emerſion	12	50	14,6
Ephemeris	7	16	33
Longitude in time	5	33	41,6
in degrees	° 83	′ 25	″ 16

Obſervations

Observations by T. D. P.

	h ′ ″
⊙ On the Meridian, Sept. 2	23.20.47
Equation of E. A.	+02,5
	23.20.49,5 flow 39.10,5

	h	
⊙ Altitude, 5th Sept.	21.53.55,5	67.31.35
Refraction and parallax		— 20
Collimation		+ 51
		67.32.06

⊙ Declination at the time and place	6.14.26
Latitude	17.53.32

	h ′ ″	
From which data the time was	22.41.10,0	
By the watch	21.53.55,5	flow 47.20,5

Whence the daily was 167,7

An Emerſion of Jupiter's *firſt Satellite.*

The ſky clear of clouds, and the glaſs ſteady; but the vapours had a perceptible motion through the teleſcope. The Belts were very diſtinct.

C

5th Sep-

	h ′ ″
5th September, by watch emerged	14.00.35
N. B. Full ſplendor 14. 2. 15. Too ſlow at the altitude of the ⊙ taken after the obſervation - - - - - - - - -	+ 47.20,5
Loſs after the obſervation, at 167″,7	— 54,4
Emerſion	14.47.01,1
Ephemeris	9.13.36
Longitude in time -	5.33.25,1
	°
in degrees	83.21.18

Obſervations by Lieutenant COLEBROOKE.

	h ′ ″		
⊙ On Meridian, Sept. 29th	23.38.27,6		
Equation of E. A.	+ 5,4		
	23.38.33,0	flow	′ ″ 21.27,0
Equation of time	23.49.46,4		
		flow	11.13,4
⊙ On Meridian, Oct. 1ſt	23.32.17,3		
Equation of E. A.	+ 5,7		
	23.32.23,0	flow	′ ″ 27.37,0
Equation of time	23.49.08,6		
		flow	16.45,6

Daily loſs on ſolar time ′ ″ 3.05,1

An Emerſion of Jupiter's *firſt Satellite.*

Loſs now at noon - -	+21.27
Loſs till obſervation at 185″,1	+ 1,15
Emerſion	9.37.52
Ephemeris	4.05.02
Longitude in time	5.32.50
in degrees	83.12.30

I ſuſpect that a miſtake was committed in writing down the time, and that it ought to have been 9h,16′,10″. But this is as it is entered in the original book.

13th October, at 1′.48″ ſet the watch forward one hour without ſtopping it.

⊙ On Meridian, Oct. 15th	23h.51′.53″,5		
Equation of E. A. -	+ 6,8		
	23.52.00,3	flow	7′.59″,7
Equation of time	23.45.31,7	faſt	6.28,6

The obſervation of the ⊙ paſſage over the meridian was not taken the next day after the emerſion as uſual, and between the 17th and 18th the watch ran down; therefore the rate is aſcertained from the mean time, compared with the 29th September and 1ſt October.

And

And the watch loſt by the 1ſt	173,6 daily
by the 2d	174,7
Mean	174,7
Daily variation	+11,5
Daily loſs on ſolar time	185,7

An Emerſion of Jupiter's *firſt Satellite.*

	h ′ ″
16th October, by watch emerged	7.53.35
Too ſlow at noon	+ 7.59,7
Loſs till obſervation at 185″,7	+ 1.01,9
Emerſion	8.02.36,6
Ephemeris	2.29.17,0
Longitude in time	5.33.19,6
in degrees	° 83.19.54

Reſult of the Obſervation of Longitude.

	h ′ ″	° ′ ″
29th Auguſt, COLEBROOKE	83.25.16	83.25.16
5th September, PEARSE	83.21.18	83.21.18
30th ditto, COLEBROOKE	82.12.30	rejected.
16th October, COLEBROOKE	83.19.54	83.19.54
Mean	83.19.44,5	83.22.09,3

VIZIANAGARUM PALACE.

An Obſervation of Jupiter's *ſecond Satellite, by* T. D. P.

	h ′ ″
22d October, by watch emerged	7.16.06
Full ſplendor	18.18

Observations by Lieutenant COLEBROOKE.

Equal Altitudes.

	h ′ ″		
Fumulhoot rising	7.48.10		
falling	9.44.25		
On the Meridian	8.46.17,5		
By calculation	8.54.35,5	flow	8.18

⊙ On the Meridian, Oct. 22d	23.50.14,5		
Equation of E. A. -	+ 7,0		
	23.50.21,5	flow	9.38,5

23d Oct. * *Fumulhoot* rising	7.51.39		
falling	9.29.05		
* On the Meridian	8.40.22		
By calculation	8.50,46,2	flow	10.24,2

⊙ On the Meridian, 23d	23.48.10,3		
Equation of E. A.	+ 7,6		
	23.48.17,3	flow	11.42,7

From the above, daily loss 125″,2

An Emersion of Jupiter's *first Satellite.*

	h ′ ″
By watch emerged	9.48.55

22d

	h ′ ″
22d Oct. *Jupiter's* second Satellite emerged	7.16.06
By *Fumulhoot*, watch slow	+ 8.18
h ′ ″	
Loss in 1.30 after emersion, at 125,2	— 07,8
Emersion	7.24.16,2
Ephemeris	1.49.57
Longitude in time	5.34.19,2
in degrees	° 83.34.48
23d Oct. *Jupiter's* first Satellite emerged	9.48.55
	h ′ ″
By *Fumulhoot* too slow	+10.24,6
h ′ ″	
Loss in 1.8. after *Fumulhoot* passed at 125,2	+ 06,0
Emersion	9.59.25,6
Ephemeris	4.26.08,0
Longitude in time	5.33.17,6
in degrees	° 83.19.54,0

Mr. MAXTON observed this at *Vizacpatam:* and the two observations shew only 39″ difference of longitude; but the high hill that lies to the north of the Palace bore from *Beemulwilsa*, N. 8°.25′ E. and by trigonometry its distance was 22,978 miles, therefore it lay north of *Beemulwilsa* 19′.28.″ and east 2′.52″. The Palace lies 12′.20″,3 to the north by observations at large, and therefore to the east 1′.48″. But *Beemulwilsa* lies to the east of *Vizacpatam.* Mr. MAXTON's eye, it may be presumed,

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preſumed, is not ſo quick as Lieutenant Colebrooke's, and will ſuffice to account for the difference; for, by a particular ſurvey round theſe parts, *Vizianagur* Fort does lie 6′.36″ eaſt of *Vizacpatam*.

NARRAINPOORE,

Which, by the table of the route, lies weſt of *Vizianagarum* Palace 2′.

Obſervations by Lieutenant COLEBROOKE *for Time.*

	h ′ ″		′ ″
On the Meridian Oct. 31ſt	23.36.04,3		
Equation	+ 6,4		
	23.36.10,7	ſlow	23.49,3
November 1ſt	23.34.39,5		
Equation	+ 6,8		
	23.34.46,3	ſlow	25.13,7
	Daily loſs		1.24,4

An Obſervation of Jupiter's *firſt Satellite.*

	h ′ ″
Sky remarkably clear, and glaſs ſteady	
31ſt October, emerged by watch	6.00.45
Too ſlow at noon	23.49,3
Loſs till obſervation at 84″,4	22,5
Emerſion	6.24.56,8
Ephemeris	51.26
Longitude in time	5.33.30,8
in degrees	° 83.22.42,0

KALINGA-

KALINGAPATAM, 1784.

Observations by Lieutenant COLEBROOKE *for Time.*

	h ′ ″	
☉ On Meridian, Nov. 7th	23.50.56,5	
Equation of E. A.,	+ 6,8	
	23.51.03,3	flow 8.56,7.
β Caſſiopææ on the Meridian	8.49.48	
by calculation	9.00.01,6	flow 10.13,6

Therefore the watch loſt 1.16,9 in 9 hours, and 205,06 daily.

N. B. The watch had run down on the 5th, and the weather was changing from dry to cloudy, which ended in rain.

For Longitude.

An Emerſion of Jupiter's *firſt Satellite.*

		h ′ ″
Glaſs ſteady, atmoſphere rather thick.		
By watch emerged		8.13.35
Too ſlow by the ſtar		+ 10.13,6
The ſtar paſſed after the emerſion 36′; loſs for that time - - - - - - - -		— 5,1
	Emerſion	8.23.43,5
	Ephemeris	2.47,01,0
	Longitude in time	5.36.42,5
	in degrees	84.10.37,5

IECHA-

IECHAPOORE, 1782.

Observations by T. D. P.

Double altitudes of *Jupiter*, with the octant and artificial horizon.

Time.	*Angles.*		
h ′ ″	° ′ ″		h ′ ″
8.10.03	— 64.28.10	*Jupiter's* R. A. at the time	17.21.46,6
13.03	— 63.30.00	Declination S.	° 23.02.04
15.08	— 62.45.20.	⊙ R. A. at the time	h 11.55.08,2
18.53	— 61.50.30	Latitude by COLEBROOKE, 1784, see Table	
8.14.17	Mean 31.34.15	See Observations at large	° 19.06.45
	Ref. — 1.34		
	31.32.41		

From the above data, *Jupiter* had paſſed the meridian.

h ′ ″		h ′ ″
2.45.59,2,	and the time was	8.12.37,6
	Watch	8.14.17
	Too faſt	1.39,4

An Eclipſe of the Moon.

	h ′ ″	
21ſt Sept.	7.00.15	doubtful.
	01.40	begun certainly.
	02.40	ſtrong ſhadow came on.
	04.14	penumbra touched a place which I name A.
	09.03	ſhadow touched A.
	9.06.56	ſhadow touched the limb at B.
	08.11	penumbra going.
	10.12	limb not perfectly bright.
	11.20	end certainly, and at B.

By

By compariſon of the obſervations at A, it appears that the ſhadow required 4′.49″ to move through the breadth of the penumbra. By comparing thoſe at B, it appears that 4′.24″ were then ſufficient.

The mean of theſe will be very near the truth; it is 37″.

	h ′ ″
Shadow came on	7.02.40
Advance of penumbra	— 04.37
Beginning of eclipſe	6.58.03
Shadow touched the limb	9.06.56
Retreat of penumbra	+ 04.37
End of eclipſe	9.11.33
Duration obſerved	2.13.30
Duration by ephemeris	2.08.30
	+ 05 00
By ephemeris end	3.28
Beginning	1.19.30
Duration	2.08.30
Ephemeris middle	2.23.45
Middle obſerved by watch	8.04.48
Too faſt	— 1.39.4
	8 03 08,6
Ephemeris	2.23 45
Longitude in time	5 39 23,6
degrees	° 84.50.54

GANJAM

GANJAM FORT, 1782.

Observations by T. D. P. *Latitude determined.*

		h ′ ″
4th September, horizon clear,	Octant	19.21.30
6th very hazy, by sextant and quadrant, both agreed		19.21.03
16th	Sextant	19.21.50
	Octant	19.19.50
	Mean	19.21.03

These were taken from the top of the Chief's house: the sea was the horizon; the height above the area of the fort was measured, but the height of that area was guessed at; the dip was taken corresponding to this height from the tables.

An Observation of Jupiter's *fourth Satellite.*

	h ′ ″
16th September, 1782, immersion	6.45.27
The change of colour was noted at	6.44.04

Clouds prevented the observing of the emersion of this and the immersion of the first, which happened that night.

GANJAM CAMP, 1784.

Observations by Lieut. COLEBROOKE.

		′ ″ °
⊙ On the Meridian, Nov. 20th	23·57·36,3	
Equation of E. A.	+ 05,5	
	23·57·41,8 slow	2.18,2

⊙ On

	h ′ ″
☉ On the Meridian, Nov. 21ſt	23.56.00
Equation of E. A.	+ 05,5
	23.56.05,5 ſlow 3.54,5
☉ On the Meridian, 22d	23.54.15,0
Equation of E. A.	05,4
	23.54.20,4 ſlow 5.59,6

* ε *Caſſiopeæ*, 24th November.

	First Wire.	*Middle.*	*Upper.*	
	h. ′ ″	′ ″	′ ″	
Riſing	7.28.20	34.40	42.40	
Falling	9.35.53	29.35	21.37	
				h ′ ″
On the Meridian	8.32.06,5	32.07,5	32.08,5	= 8.32.07,5
			By calculation	8.39.51,2
			Slow	7.43,7

Which, compared with the laſt ſolar obſervation, gives 91″,3 daily loſs.

An Emerſion of Jupiter's *firſt Satellite.*

	h ′ ″
24th November, by watch emerged	6.37.35
Too ſlow by the ſtar	+ 7.43,7
Loſs after the emerſion, at 91″,3	— 7,3
Emerſion	6.45.11,4
Ephemeris	1.04.39
Longitude in time	5.40.32,4
in degrees	° 86.08.06

JEHAUD.

JEHAUD JEPOORE, 1784.

Observations by Lieut. COLEBROOKE.

17th Dec. * ε *Cassiopeæ*	h ′ ″	′ ″		
rising	6.31.40	42.03		
falling	8.05.53	55.31		
			h ′ ″	
* On the Meridian	7.18.46,5	18.47	= 7.18.46,7	
By calculation			7.54.48,7	
Watch slow				36.02,0

	h ′ ″		
☉ On the Meridian, 17th	23.23.59,3		
Equation of E. A.	+1		
	23.24.00	flow	36,00

An Emersion of Jupiter's *first Satellite.*

	h ′ ″
By watch emerged	6.21.25
Too slow by the*	36.02
Emersion	6.57.27
Ephemeris	1.11.50
Longitude in time	5.45.37
in degrees	86.24.15

SOOBUN-

SOOBUNREEKA RIVER CAMP, 1784.

Obſervations by Lieutenant COLEBROOKE.

N. B. *Oppoſite* Jellaſore, *on the* Ballaſore *ſide of the River.*

	h ′ ″		′ ″
⊙ On the Meridian, Dec. 24th	23.19.34,1		
Equation of E. A.	— 7		
	23.19.33,4	flow	40.26,6
⊙ On the Meridian, Dec. 25th	23.18.12		
Equation of E. A.	— 1		
	23.18.11	flow	41.49,0

Daily loſs 82″,4

An Emerſion of Jupiter's *firſt Satellite.*

	h ′ ″
17th December, by watch emerged	8.12.42
Full ſplendor. Too flow at the following	
h ′ ″ noon - - - - -	40.26,2
8.13.50 Loſs after emerſion, at 82″,4	—52
Emerſion	8.52.16,2
Ephemeris	3.04.14
Longitude in time	5.48.02,2
in degrees	° 87.00.33,0

An

An Emerſion of Jupiter's *ſecond Satellite.*

	h ′ ″
5th December, by watch emerged	6.04.40
Watch ſlow	+40.26,6
Loſs till obſervation, at 82″,4	+ 23,2
Emerſion	6.45.29,8
Ephemeris	55·57
Longitude in time	5.49.32,8
in degrees	° 87.23.12

Compariſon of the Obſervations for Longitudes with correſponding Obſervations at different Places, to fix the Longitudes of thoſe which were undetermined.

By T. D. Pearse.

C A L C U T T A.

The obſervatory was at the Treaſury Gate in *Fort William.*

Lunar Eclipſes.

	° ′ ″
1776, July 30, Immerſion at *Calcutta*	17.01.16
Greenwich	11.08.21 h ′ ″
	5·52·55

As this was not of the beſt, I reject it.

1779, November 23d. I reject the beginning, becauſe, when compared with *Tycho* in the former part, it appears, from a like compariſon of the *Greenwich* obſervations, that it is erroneous a full minute. The firſt

Copernicus is alſo rejected. And by comparing the end doubtful with *Tycho* and *Copernicus* of the latter part in both ſets, it appears to be the obſervation that muſt be compared with the end at *Greenwich*.

	Calcutta.	*Greenwich.*	*Longitude.*
	h / //	h / //	h / //
The body of Tycho touched	12.35.30	6.42.29	5.53.01,0
paſſed	36.53	43.36	17,0
Immerſion	13.01.41,3	7.08.08	33,3
Emerſion	14.40.13,3	8.46.23	50,3
Grimaldi touched	43.06,3	49.45	21,3
The middle of Copernicus	15.02.44,1	9.08.59,5	44,6
The body of Tycho touched	04.56	11.39	17,0
paſſed	06.23	12.49	34,0
The end	15.39.45,6	9.46.09	36,6
		Mean in time	5.53.28,3
		°	
		1 degrees	88.22.04,5

Jupiter's *Satellites*.

From the beginning of 1774, till the 27th of December 1777, the obſervations were made with a middling 18 inch reflector. I allow 24″ to compare it with the large reflector at *Greenwich*, and 12″ for their refractor. The compariſon is of actual correſponding obſervations, except in two caſes, in which the *Calcutta* obſervations are one revolution later. The Longitudes of *Paris* and *Stockholm* are taken from WARGENTIN, Phil. Tranſ. vol. 67. LUNDEN, from thirty-three correſponding obſervations found in that ſame paper. Of *Chiſlehurſt*, from WOLLASTON, vol. 74. Of *Geneva*, *Oxford*, and *Marſeilles*, from PIGOT, vol. 68 and 76. *Nagpoore* and *Chunargur* were communicated to me by Lieutenant EWART, of the *Bengal* eſtabliſhment, who obſerved at each place a conſiderable time.

Date.	Place.	Time.	Correction for Longitude or Glass.	Times correct.	LONGITUDE. In Time.	LONGITUDE. In Degrees.
		h / //	h / //	h / //	h / //	
1774, October 14th.	Calcutta,	12.32.25	1ſt Sat. Im. + 24	12.32.49		
	Stockholm,	07.52.00	—1.12.21	6.39.39		
					5.53.10,0	
21ſt.	Greenwich,	° / //	1ſt Sat. Im.	8.35.00		
	Paris,	8.44.47	— 09.25	22		
	Geneva,	8.59.20	— 24 05	15		
	Oxford,	8.30.26	+ 4.59	25		
		Immerſion,	Mean,	8.35.15,5		
		Add	one Revolution 1. Day, 23d	18.28 49		
				3.04. 4,5		
23d.	Calcutta,	8.57.15	1 Sat. Im. + / // 24	8.57.39		
					5.53.34.5	
December 31ſt.	Calcutta,	11.25.47	/ // — 24 Em.	11.25.23		
	Lunden,	6.25.05	52.55	5.32.10		
					5.53.13,0	
1776, November 11th.	Greenwich,	1ſt Sat. Im.	N. B. Refractor,	13.37.32		
		Add	one Revolution 1. Day, 13th,	18.28.06		
				8.05.38		
13th.	Calcutta,	13.58.56,3	1 Sat. Im. + / // 12	13.59.08,3		
					5.53.30,3	
17th.	Calcutta,	15.31.51,3	3d Sat. Im. + 12	15.32.03,3		
	Chiſlehurſt,	9.38.48,5	— 19	9.38.29,5		
					5.53.33,8	

December 18th.	Calcutta,	15.58.21	2d Sat. Im. / //	15.58.21		
	Marseilles,	10.05.54	—21.25	10.04.29		
					5.53.52,0	
			Mean by Jupiter's Satellite		5.53.29	
			By Lunar Eclipses -		5.53.28	
			Result—Longitude of Calcutta -		5.53.28,5	88.22.07,5

Date.	Place.	Time.	Correction for Longitude or Glass.	Times correct.	LONGITUDE. In Time.	In Degrees.
		A LUNAR	ECLIPSE.	h / //		
1782, September 21st.	Ichapoore,	The shadow	touched the limb,	9.05.16,6		
		h / //	h / //		h / //	° / //
	Nagpoore,	8.44.22	5.18.46	3.25.36	5.39.40,6	84.55.09,0
		JUPITER'S	SATELLITES.			
October 9th.	Kossim Kotta,	1st Sat. E.		7.09.48		
	Nagpoore,	6.56.43	—5.18.46	1.37.57		
					5.31.51,0	82.57.45
1784, September 5th.	York,	9.08.54	+ 4.31	9.13.25		
	Greenwich		Refractor,	15		
			+ glass, 13			
	Paris,	9.22.18	— 9.25	06		
			1st Sat. E. Mean,	9.13.15,5		
	Beemulwilsa	14.47.01,1	— 12	14 46.49,1		
					5.33.34,0	83.23.30,0
				8.23.43,5		
November 8th.	Kalingapatam,		1st. Sat. E.	2.47.09		
	Chunargur,	8.19.45	—5.32.26		5.36.34,5	84.08.37,0

Observations at large for determining the Latitude of Places.

Phænomenon and Face of the Quadrant.	*Date.*	ARCH of 96. *Reading.*	*Value.*	*Arch of 90.*	*Refraction or Equation applied.*	*Zenith Distance corrected.*	*Declination.*	*Latitude by the Observation.*	*Name of the Place and its correct Latitude.*
	1783,	D. S. D. N.	° ′ ″	° ′ ″	″	° ′ ″	° ′ ″	° ′ ″	
α Aquilæ, E.	Oct. 9th.	4. 3.28,3	4.39.36,2	4.40 00	4,3	4.39.52,4	8.18.24,7N.	12.58.17,1	Viperee.
W.	11th.	6 – 3.01,5	4.54.39,2	4.55.00	5	4.54.54,2		13.13.18,9	
E.	12th.	4. 3.28	4.39.29,6	4.40.00	4,3	4.39.49,1		12.58.13.8	
α Cygni, W.	9th.	33. 1.20,5	31.19 19,3	31.19.10	35,3	31.19.50	44.30.53,8N.	13.11.03.8	
W.	11th.	33. 1.18,5	31.18.26,5	31.18.30	35,3	31.19.03,6		13.11.50,2	
Fumulhoot, E.	11th.	46. 2.18	43.43.32	43.44.00	54,5	43.44.40.5	30.45.43 S.	12.58,57,5	
α Pegasi, E.	11th.	2 – 3.12	1. 5.02,4	1. 5.00	1	1. 5.02,2	14. 2.42,8N.	12.57.40,6	
W.	11th.	0. 3.21	0.51.11,3	0.51.30,0	0,8	0.51.21,5		13.11.21,3	
4 Stars E.								12.58.17,2	Viperee.
4 Stars, W.								13.11.53,5	° ′ ″ 13.05.05.35
Algenib, E.	Nov.	1. 0.00	0.56.15	0.57.00	0,9	0.56.38,4	13.58.34,7N.	13. 1.56,4	Trivatoore.
W.	21st.	0. 3.00	0.42.11,3	0.42.30	0,7	0.42.21,3		13.16.13,3	° ′ ″
Pole at 10 P.		79. 3.16	74.53.18	74.53.30	210,0	75.00.12,2	88. 9,08	13.08.55,8	13. 9.00,4
				Collim.	+ 428,0				
	1784, April		Below the Pole		— 228,0				
α Leonis, E.	23d,	0. 1.04	0.15.49,2	0.15.55	0	0.15.55,3	13.00.53 N.	13.16.45	North side of Cortalare River.

Phœnomenon and Face of the Quadrant.		*Date.*	Arch of 96. *Reading.*	*Value.*	*Arch of 90.*	*Refraction or Equation applied.*	*Zenith Distance corrected.*	*Declination.*	*Latitude by the Observation.*	*Name of the Place and its correct Latitude.*
		1784, April	D. S. D. N.	° ′ ″	° ′ ″	″	° ′ ″	° ′ ″	° ′ ″	° ′ ″
α Urſ. Maj.	W.	23d.	52. 3.29	49 39.56	49.40.40	67,0	49 41.25	62.54.43 N.	13.13.18	13.15.01,5
α Leonis,	W.	25th,	0. 2.09	0.32.05	0.32.40	0,5	0.30.43	13.00.53 N.	13.31.34	Arambaukum.
						Collim. 102				° ′ ″
α Urſ. Maj.	W.	26th.	52. 1.29	49.11.48,4	49.12.20	67,0	49.13.11,2	62.54.43 N.	13.41.32,2	13.31.36 Akamapett.
α Virginis,	E.		25. 1.01	23.40.45	23.41.00	25	23.41.17,5	10. 1.46 S.	13.39 31.5	° ′ ″ 13.40.32
α Leonis,	W.	27th,	0. 3.10,5	0.46.48	0.47.00	0,8	0.46.54,8	13. 0.53 N.	13.47.47,8	Akarumpauk.
γ Leonis,	W.		7. 2.14	7. 8.01,6	7. 7.20	7	7. 7.48,8	20.55.38 N.	13.47.50	° ′ ″ 13.47.49
γ Leonis,	W.	28th,	7. 1.20	6.56.36	6.57. 0	7	6.56.55		13.40.43	Nayrpett.
α Virginis,	E.		25.20.01	23.54.49	23.55.00	25	23.55.19	10. 1.46 S.	13.53 33	° ′ ″ 13.56.08
α Urſ. Maj.	W.	29th,	52. 0.12,5	48.50.29,6	48.50.50	65	48.51.45	62.54.43 N.	14. 2.58	Korware.
α Virginis,	E.		25. 2.25	24. 5.22	24 5.50	25	24. 6.01	10. 1.46 S.	14. 4.15	° ′ ″
γ Leonis,	W.	30th,	7. 1. 3	6.49.07,2	6.49.10	6,5	6.49.15	20.55.38 N.	14. 6.23	14. 5.12,6
α Urſ. Maj.	W.		52. 0. 9	48.48.57	48.49.40	65	48.50.23	62.54.43 N.	14. 4.20	
α Virginis,	E.		25. 2.23	24. 4.29	24. 5.10.	25	24. 5.15	10. 1.46 S	14. 3.29	Vincateechi-
α Urſ. Maj.	W.	May	51. 3.04	48.32.42	48.32.00	64	48.33.25	62.54.43 N.	14.21.18	lum ° ′ ″
α Virginis,	E.	1ſt,	25. 3.26	24.19.52	24.20.00	26	24.20.22	10. 1.46	14.18 36	14.19.57

Observations at large for determining the Latitudes of Places.

Phænomenon and Face of the Quadrant.	*Date.*	Arch of 96. *Reading.*	*Value.*	*Arch of 90.*	*Equation applied.*	*Zenith Distance corrected.*	*Declination.*	*Latitude by the Observation.*	*Name of the Place & its correct Latitude*
	1784,	D.S.D.N.	° ′ ″	° ′ ″	″	° ′ ″	° ′ ″	° ′ ″	
δ Urſ. Maj. W.	May	46. 2.17	43.43. 6	43.44.00	54	43.44.27	58.13.58 N.	14.29.31	Pinnare River
ζ Urſ. Maj. W.	3d	44. 1.10	41.43.27,4	41.33.10	50,3	41.34.09	56. 3.23 N.	14.29.14	North Bank
								° ′ ″	
α Virginis, E.		26. 0.15	24.29.05,5	24.29.10	26	24.29.33,7	10. 1.46 S.	14.27.47,7	14.28.35
α Virginis, E.	10th,	26. 2.22	25.00.17,6	25.00.40	26,2	25.00.55		14.59.09	Ollore*
ζ Urſ. Maj. W.		44. 1.20	41.37.51	41.37.20	49	41.38.24,5	56. 3.23 N.	14.24.58,5	14.42.03,8
δ Urſ. Maj. W.	12th,	46. 0.22	43.17.10	43.17.10	53	43.18.03	58.13.58 N.	14.55.55	Mooaumillo-
α Virginis. E.		26. 1.28	24.48.52	24.48.50	25	24.49.16	10. 1.48 S.	14.47.28	dooro
ζ Urſ. Maj. W.		43. 3.15	41. 7.32	41. 8.10	44	41. 8.35	56. 3.23 N.	14.54.48	
α Virginis, E.	13th,	26. 1.30	24.49.48,5	24.50.00	25	24.50.19,3	10. 1.48 S.	14.48.31,3	
ζ Urſ. Maj. W.		43. 3.14	41. 7.05,5	41. 7.10	44	41. 7.51,7	56. 3.23 N.	14.55.31,3	14.51.42,1
δ Urſ. Maj. W.	19th,	45. 2.07	42.42.27,1	42.42.10	53	42.43.11,5	58.13.58 N.	15.30.46,5	Ongole, pro-
ε Urſ. Maj. W.		44. 1.17	41.36.32	41.36.00	50	41.37.06	57. 8.02,5 N.	15.30.56,5	perly Wungole
α Virginis. E.		27. 0.22	25.28.25	25.29.00	27	25.29.09,5	10. 1.48 S.	15.27.21,5	
ζ Urſ. Maj. W.		43. 0.27	40.30.37	40.30.30	49	40.31.22,5	56. 3.23 N.	15.32.00,5	15.29.18,2
α Virginis, E.	20th,	27. 1.05	25.35.01	25.35.00	27	25.35.27,5	10. 1.48 S.	15.33.39,5	Chicoortee
ζ Urſ. Maj. W.		43. 0.17	40.26.13	40.26.05	49	40.26.58	56. 3.23 N.	15.36.25	15.35.44,5

Phœnomenon and Face of the Quadrant.	Date.	Arch of 96. Reading.	Value.	Arch of 90.	Equation applied.	Zenith Distance corrected.	Declination.	Latitude by the Observation.	Name of the Place and its correct Latitude.
	1784. May	D S.D.N.	° ′ ″	° ′ ″	″	° ′ ″	° ′ ″	° ′ ″	
α Virginis, E.	22d,	27. 1.05	25.35.01	25.35.00	27	25.35.27,5	10. 1.48 S.	15.33.39,5	Yenmunbender
									° ′ ″
ζ Urſ. Maj. W.		43. 0.13	40.24.29	40.25 00	49	40.25.33.4	56. 3.23 N	15.37.49,6	15.46.27,5
κ Urſ. Maj. W	23d,	36. 3 15	34.33.37	34 33.50	39	34.34.22.5	50.23 42 N.	15.49.09	Vantipollam
α Libræ, E.		32. 3 21	30.51.25	30.51.05	34	30 51.49	15. 8.03 S.	15.43.46	15.46.27,5
α Virginis, E	25th,	27. 2.15	25.53.28	25.54.00	28	25.54.12	10. 1.48 S	15.52.24	Baupetla
ζ Urſ. Maj. W.		42. 3. 3	40. 6.00	40. 5.50	48	40. 6.43	56. 3.23 N.	15.56.40	15.54.32

LIEUTENANT COLEBROOKE had by this time acquired the art of uſing the quadrant, and his obſervations will appear where I did not take any. The next is his, and where his are ſubſtituted, they will be marked C. He did obſerve Chicoortee, the reſult I had entered in my book, it was 15°. 34′. 10″. but his obſervation was loſt.

κ Urſ. Maj.	W.	26th,	36. 2.16	34.20.09,4	34.20 00	39	34.20.43,7	50.23.42 N.	16.02.58,3	Chundole
α Libræ,	E.		33. 0.20	31. 5.02	31. 5 00	34	31. 5.35	15. 8 03 S	15.57 32	16. 0.15,2 C.
κ Urſ. Maj.	W.	28th,	36. 1.22	34. 8.44	35. 8.05	38	34. 9 02,5	50.23.42 N.	16.14.39,5	Sicacollum, on the North Bank of the Kiſtna
α Libræ,	E.		33. 1.15	31.16.54	31.17.00	34	31.17.31	15. 8.03 S.	16. 9.28	16.12.04,3

* The quadrant was pulled to pieces at Pinnare Camp, and the line of collimation had not been adjuſted; it was performed before it was next uſed.

Observations at large for determining the Latitudes of Places.

Phænomenon and Face of the Quadrant.	*Date.*	Arch of 96. *Reading.*	*Value.*	*Arch of 90.*	*Equation applied.*	*Zenith Distance corrected.*	*Declination.*	*Latitude by the Observation.*	*Name of the Place and its correct Latitude.*
	1784	D. S. D. N.	° ′ ″	° ′ ″	′ ″	° ′ ″	° ′ ″	° ′ ″	
ε Urſ. Maj. W.	May	43. 1.18	40.40.43	40.39.55	49	40.41.08	57. 8.02,5 N.	16.26.54,5	Moodenoore
	29th,								° ′ ″
α Virginis, E.		28. 0.21	26.24.14	26.23.30	29	26.24.21	10. 1.48 S.	16.22.33	16.24.38,8 C.
α Virginis, E.	June	28. 1.28	26.41.22	26.42.00	29	26.42.10		16.40.22	Ellore
ζ Urſ. Maj. W.	1ſt,	41. 3.22	39.18.16	39.18.10	48	39.19.10	56. 3.25 N	16.44.13	16.42.17,5 P.
ε Urſ. Maj. W.		43. 0.08	40.22.15,9	40.22.20	49	40.23.07	57. 8.02,5 N.	16.44.55,5	
η Urſ. Maj. W.		35. 3.17	33.38.24,5	33.38.40	37,7	33.39.10	50.23.42 N.	16.44.32	
α Libræ, E.		33. 3.22	31.48.06,3	31.48.10	35	31.48.43,2	15. 8.04 S.	16.40.39,2	16.42.41,5 C.
⊙ Up. Limb. W.	4th,	5. 2.20	5.18.10	5.18.40	5,0	5.34.18	22.32.32 N.	16.58.14 P	Soolaurum
					+				
				Semedia.	15,49				
					—				
				Parallax.	1,0				
α Virginis, E.		28. 2.28	26.55.26	26.55.20	29	26.55.52	10. 1.48 S.	16.04.54C	16.56.08,5
α Virginis, E.	12th,	28. 3.02	26.58.04	26.57.05	29	26.58.03,5		16.56.15,5	Rajahmundree
ζ Urſ. Maj. W.		41. 2.15,5	39. 1.11,2	39. 1.20	46	39. 2.01,6	56. 3.23 N.	17. 1.12,4	16.58.43,6 P.
κ Urſ. Maj. W.	12th,	35. 2.09	33.20.50	33.21.00	36	33.21.31	50.23.42 N.	17. 2.11	
α Libræ, E.		34. 0.23	32. 2.44	32. 2.40	35	32. 3.17	15. 8.04 S.	16.55.13	16.58.42 C.
κ Urſ. Maj. W.	13th,	35. 1.29	33.15.33	33.15.00	35,5	33.15.52	50.23.42 N.	17. 7.50	Rajahnagur
β Libræ, E.		27. 1.07	25.35.53	25.35.00	27	25.35.53	8.34.33 S.	17. 1.20	7. 4.35 C.

Observations at large for determining the Latitudes of Places.

Phœnomenon and Face of the Quadrant.	*Date.*	Arch of 96. *Reading.*	*Value.*	*Arch of 90.*	*Equation applied.*	*Zenith Distance corrected.*	*Declination.*	*Longitude by the Observation.*	*Name of the Place and its correct Latitude.*
	1784.								
	June	D. S. D. N.	° ′ ″	° ′ ″	′ ″	° ′ ″	° ′ ″	° ′ ″	
x Urſ. Maj. W.	14th,	35. 1.29	33.15.33.5	33.15.55.	37	33.16.21	50.23.42 N.	17. 7.21	Peddapore
α Draconis, W		51. 2.00	48.16.52,5	48.16.10	62,7	48.17.34	65.24.36 N.	17. 7.02	
α Libræ, E.		34. 1.18	32.10.05	32. 9.30	34,5	32.10.22	15. 8.04 S.	17. 2.18	° ′ ″
β Libræ, E.		27. 1.07	25.35.53.3	25.34.40	25,4	25.36.12	8.34.33 S.	17. 1.39	17. 4.35 P
β Scorpii, E.	18th,	38. 2.20	36.14.25	26.13.40	41,5	36.14.44	19.12.01,6 S.	17. 2.42	
γ Draconis, W.		36. 2.24	34.23.40	34.24.00	39,0	34.24.29	51.31.18 N.	17. 6.49	17. 4.45,5 C.
α Virginis, E.	20th,	28. 3.27	27. 8.59,7	27. 8.30	29,0	27. 9.13,7	10. 1.48 S.	17. 7.26	Gooloopool-
β Libræ, E.		27. 1.19	25.41.09,7	25.41.30	28,0	25.41.48	8.34.33 S.	17. 7.15	loore,
ζ Urſ. Maj. W.		41. 1.30	38.53.30	38.53.20	44,0	38.54.09	56. 3.33 N.	17. 9.05	
x Urſ. Maj. W.		35. 1.23	33.12.55,2	33.12.50	37	33.13.15	50.23.42 N.	17.10.27	17. 8.35,5 C
x Urſ. Maj. W.	21ſt,	35. 1.16	33. 9 50.6	33. 9.20	37	33.10.12	50.23.42 N.	17.13.30	Ponding and Matoor.
α Libræ, E.		34. 1.39	32.19.18	32.20.00	35	32.20.14	58.18 04 S.	17.12.10	17.12.45 C.
β Libræ, E.	22d,	27. 2.10	25.51.16	25.50.20	28	25.53.06	8.34.33 S.	17.18.33	Suteawaurum
					+				
		From 18th to 20th		June Col.	1.50				17.18.33 C.
α Coronæ Borealis, W.	24th,	10. 2.02	9.51.30	9.50.40	10	9.51.15	27.27.03,5 N.	17.35.48,5	Ellmuchille
β Scorpii, E.		39. 0.19	36.42.06	36.41.50	43	36.42.41	19.12.01,6 S.	17.30.39,4	17.33.14 C.

Observations at large for determining the Latitudes of Places.

Phœnomenon and Face of the Quadrant.	*Date.*	Arch of 96. *Reading.*	*Value.*	*Arch of 90.*	*Equation applied.*	*Zenith Distance corrected.*	*Declination.*	*Latitude by the Observation.*	*Name of the Place and its correct Latitude.*
	1784								
α Coronæ Borea-	June	D. S. D. N.	° ′ ″	° ′ ″	′ ″	° ′ ″	° ′ ″	° ′ ″	
lis, W.	27th,	10. 1.08	9.40.04,7	9.39.40	9,6	9.40.02	27.27.03,5 N.	17.47.01,5	Sobaurum
	July							° ′ ″	
β Scorpii, E.	9th,	39. 1.23,5	36.58.08,4	30.57.20	43	36.58.27,2	19.12.02 S.	17.46.25,2	17 46.59,2 C.
α Scorpii, E.	12th,	46. 2.11	43.40.27,6	43.41.00	55	43.41.39	25.56.12 S	17.45.27	These were made with difficulty amongst clouds & winds, but they were all that could be had.
					+				
⊙ Up. Limb W.		5.04.12	3.50.16,4	3.50.00	3,6	4. 5.59	27,55.02 N.	17.49.03	
				Ref. & Par.	+				
	Sept.			Semedia.	15,47				
α Lyræ, W.	8th,	22.00.29	20.50.14	20.49.40	33	20.50.30	38.35.26,3 N.	17.44.56,3	Vizacpatam
β Lyræ, W.		16.01.20	15.22.51	15.22.10	15	15.22.45,5	33.07.16 N.	17.44.30,5	
α Aquilæ, E.		9.03.27	9.20.18,2	9.20.00	9	9.20.18,1	8.18.32,5 N.	17.38.50,6	
β Aquilæ, E.		12.02.05,5	11.45.33	11.45.10	12	11.45.34	5.53.08,3 N.	17.38.42,3	17.41.45
α Coronæ Borea-	July								Beemulwilfa Camp,
lis, W.	14th,	10. 0.16	9.29.32	9.28.50	9,5	9.29.20,5	27.27.03,5 N.	17.57.43,0	A clear Night.
γ Draconis, W.		35. 3.07	33.34 01	33.33.10	37,5	33.34.13	51.31.18 N	17.57.05	
α Scorpii, E.		39. 2.03	37. 3.11	37. 2.40	43	37. 3.38,5	19.12.02 S.	17.51.36,5	17.54.15 C.
β Scorpii, E.		46. 2.23	43.45.44	43.46.00	55	43.46.47	25.56.12 S	17.50.35	Simachillum
β Libræ, E.		28. 0.08	26.18.31	26.19.00	20,5	26.19.14	8.34.33 S	17.44.41	
α Coronæ Borea-									
lis, W.	8th,	10. 1.05,5	9.38.59	9.38.40	9,5	9.38.59,0	27.27.03,5 N.	17.48.04,5	17.46.28,8 C.

Observations at large for determining the Latitudes of Places.

The four following Observations were taken by a Quadrant made by RAMSDEN, eighteen inches radius, which shewed Altitudes.

Phænomenon and Face of the Quadrant.	*Date.*	Arch of 96. *Reading.*	*Value.*	*Arch of 90.*	*Equation applied.*	*Zenith Distance corrected.*	*Declination.*	*Latitude by the Observation.*	*Name of the Place and its correct Latitude.*
	1784.								
	Aug.	D. S. D. N.	° ′ ″	° ′ ″	″	° ′ ″	° ′ ″	° ′ ″	
α Lyræ, W.	29th,	73. 3.10	69.17.13,6	69.17.35	−22	69.17.02,3	38 35.26,1 N.	17.52.28,4	Beemulwilsa,
β Lyræ, W.		79.03.00,9	74.45.47,3	74.46. 0	−15,6	74.45.38	33 07.16 N.	17.52.54,0	Head Quarters,
α Aquilæ*, E.		85.03. 2	80.24.24	80.24.50	−10	80.24.27	8.18.32 N.	17.54. 5	° ′ ″
β Aquilæ†, E.		83.00.12	77.58.32	77.58.47	−12	77.58.28	5.53.08 N.	17.54.40	17.53.32 P
α Draconis, W.	8th,	35 03.11	33.35.46,3	33.35.00	38	33 36.01	51.31.18 N.	17.55.17	
α Lyræ, W.		22.00.04	20.39.16	20.38.30	20	20.39.13	38.35.26 N.	17.56.13	
α Lyræ, W.	9th,	22.00.05	20.39.42	20.39.00	20	29 39.41		17.55.45	
ε Sagitarii, E.		55 03.08	52.19.27,3	52.18.50	75	52.20.18,6	34.27.59,5 S.	17.52.29	
α Aquilæ, E.	28th,	10.00 28,5	9.32.50	9.33.00	10	9.33.05	8.18.32,5 N.	17.51.37,5	
ε Sagitarii, E.	31st,	55.03.07	52.19.01	52.18.40	75	52.20.06	34.27 59,5 S.	17.52.06,5	
α Lyræ, W.		22.00.06	20.40.09	20.39.30	20	20.40.15	38.35.26 N.	17.55.11	
α Cygni, W.	Sept.	38.01.13	26.34.46,6	26.35.00	29	26.35.22	44.31.05,3 N.	17.55.43,3	
β Aquarii, E.	3d,	25.03.30	24.21.37,3	24.22.00	25	24.22.14	6.30.33 S	17.51.41	
α Cephei W.	27th,	46.02.22	43.45.17,3	43.45.00	55	43.46.04	61.40.42 N.	17.54.38	
β Aquarii, E.		26.00.00	24.20.30	24.22.20	25	24.22.50	6.30.33 S.	17.52.17	
6 North. Stars,								17.55.28	
6 South. Stars,								17.52.14	

Head Quarters, Cantonments at Beemulwilsa, ° ′ ″ The mean 17.53.51 C.

* From the reading of α Aquilæ. 20th August. subtract 48″. † and from β Aquilæ 45″.

Observations at large for determining the Latitudes of Places.

From henceforward all the Obfervations were taken by Lieutenant COLEBROOKE.

Phænomenon and Face of the Quadrant.		*Date.*	Arch of 96. *Reading.*	Arch of 96. *Value.*	*Arch of 90.*	*Equation applied.*	*Zenith Diſtance corrected.*	*Declination.*	*Latitude by the Obſervation.*	*Name of the Place and its correct Latitude.*
		1784 Oct.	D. S. D. N.	° ′ ″	° ′ ″	″	° ′ ″	° ′ ″	° ′ ″	
α Cephei,	W.	22d,	46.01.24	43.32.06,8	43.31.30	53	43.32.42,3	61.40.42,2N.	18.08.00	Vizianagur Pa-
β Aquarii,	E.		26.00.26	24.33.55,6	24.33.30	26	24.34.08,8	6.30.33 S.	18.03.35,8	lace,
α Cygni,	W.	23d,	28.00.15,8	26.21.35,5	26.22.00	28	26.22.15,8	44.31.05,3N.	18.08.49,6	
α Cephei,	W.		46.01.25	43.32.32,9	43.31.46	54	43.33.03,5	61.40.42,2N.	18.07.38,7	° ′ ″
β Aquarii,	E.		26.00.26	24.33.55,6	24.33.35	26	24.34.11,3	6.30.33 S	18.03.38,3	18.05.52,3
α Cygni,	W.	25th,	28.00.27	26.26.51,9	26.27.00	28	26.27.24	44.31.05,2N.	18.03.41,2	Brimſing,
α Cephei,	W.		46.02.00	43.36.30,2	43.35.50	54	43.37.04,1	61.40.42,2N	18.03.38,1	
β Aquarii,	E.		26.00.19	24.30.51	24.30.00	26	24.30.51,5	6.30.33 S.	18.00.18,0	18.01.59
7 Lacertæ,	W.	26th,	33.01.23	31.20.25,2	31.20.00	34.4	31.20.47	49.10.48 N.	17.51.01	Santipollum,
Fumulhoot,	E.		51.03.07	48.34.00,8	48.33.30	64	48.34.49,5	30.45.25,6 S.	17.49.23,8	17.49.42,4
α Cephei,	W.	31ſt,	46.02.00	43.35.37,5	43.35.00	54	43.36.13	61.40.42,2N.	18.05.29,2	Chintulwiſa,
β Aquarii,	E.		26.00.18	24.30.24,6	24.30.00	25,7	24.30.38	6.30.33 S.	18.00.05	18.02.17,1
α Cephei,	W.	Nov.	46.01.26	43.32.59,3	43.32.50	54	43.33.48,6	61.40.42,2N.	18.06.53,6	Narrainpoore,
β Aquarii,	E.	1ſt,	26.00.23	24.32.36,5	44.32.20	26	24.32.54,3	6.30.33 S.	18.02.21,3	
Fumulhoot,	E.		52.00.08	48.48.30,9	48.48.30	65	48.49.35,5	30.45.25,6 S	18.04.08,9	
δ Caſſiopææ,	W.		42.01.29	39.49.18,4	39.49.00	48	39.49.57,2	57.57.50 N.	18.07.52,8	18.05.18,7
α Aquarii,	E.	3d,	20.02.26	19.24.33,5	19.24.00	20	19.24.36,8	1.21.30,6 S.	18.03.06,2	Kundalwiſa.
7 Lacertæ,	W.		33.00.11	31.01.05,1	31.01.30	34	31.01.51,6	49.10.48 N.	18.08.56,4	18.06.01,3
α Aquarii,	E.	4th,	20.03.10	19.31.34,9	19.31.30	20	19.31.52,5	1.21.30,6 S.	18.10.21,9	Timorgudha,

Observations at large for determining the Latitudes of Places.

Phœnomenon and Face of the Quadrant.	*Date.*	Arch of 96. *Reading.*	*Value.*	*Arch of 96.*	*Equation applied.*	*Zenith Distance corrected.*	*Declination.*	*Latitude by the Observation.*	*Name of the Place and its correct Latitude.*
	1784 Nov.	D. S. D. N.	° ′ ″	° ′ ″	″	° ′ ″	° ′ ″	° ′ ″	° ′ ″
γ Lacertæ, W.	4th,	33.00.00	30.56.15	30.55.20	34	30.56.21,5	49.10.48 N.	18.14.26,5	18.12.24,2 Sicacole Camp,
α Andromedis, W.	5th,	10.00.27	9.34.22	9.34.20	10	9.34.31	27.53.56 N.	18.19.25	
γ Pegasi, E.		4.02.06	4.15.45,7	4.15.00	4	4.15.27	13.59.10 N.	18 14.37	18.17.01
α Cephei, W.	7th,	46.00.21	43.16.43,7	43.17.00	53	43.17.45	61.40.42,2N.	18.22.57,2	Kalingapatam Camp,
Fumulhoot, E.		52.01.11	49.03.54	49.04.00	65	49.05.02	30.45.25,6 S.	18.19.36,4	18.21 16,8
Fumulhoot, E.	9th,	52.08.28	49.11.22,1	49.11.20	64	49.12.25		18.26.59,4	Kulliparoo,
α Andromedis, W.		10.00.02	9.23.22,4	9.23.30	10	9.23.36	27.53.53 N.	18.30.17	
γ Pegasi, E.		4.03.02	4.28.04	4.27.30	5	4.27.25	13 59.07 N.	18.26.59	18.28 39 Cossebougaum,
α Andromedis, W.	11th,	9 02.27	9.06.14.5	9 05.40	10	9.06.07	27.53.53 N.	18.47 46	
γ Pegasi, E.		5.00.05	4.43 27	4.43. 0	4,5	4.43.18	13.59 07,5N.	18.42.25,5	18.45.05,8
Fumulhoot, E.	14th,	53.00.10	49.45.38,7	49.45 30	67	49.46.41,4	30 45.22,5 S.	19.01.19	Kutwaul Taulaub,
δ Cassiopææ, W.		41.01.28	38.52.37,1	38.52.00	56	38.53.04,6	57.57.46,7N.	19.04.42,1	19.03.00,5

Observations at large for determining the Latitudes of Places.

Phænomenon and Face of the Quadrant.	*Date.*	Arch of 96. *Reading.*	*Value.*	*Arch of 90.*	*Equation applied.*	*Zenith Distance corrected.*	*Declination.*	*Latitude by the Observation.*	*Name of the Place and its correct Latitude.*
	1784.								
α Andromedis,	Nov.	D. S. D. N.	° ′ ″	° ′ ″	″	° ′ ″	° ′ ″	° ′ ″	Ichapoor,
W.	15th,	9.01.10	8.44.42,5	8.45.00	8,7	8.45.00	27.53.59 N.	19.08.59	° ′ ″
γ Pegasi, E.		5.01.23	5.05.25,3	5.05.00	5	5.05.17,5	13.59.13,3N	19.04.30,8	19.06.45
7 Lacertæ, W.	16th,	31.03.10	29.50.20	29.49.40	33	29.50.33	49.10.45 N.	19.20.12	Burrampoore,
Fumulhoot, E.		53.01.15	50.01.54,3	50.02.00	67	50.03.04,2	30.45.22,5 S.	19.17.41,7	19.18.57
7 Lacertæ, W.	17th,	31.03.13	29.51.39,1	29.51.00	33	29.51.52,6	49.10.45 N.	19.18.52,4	Munsoor Cottah,
Fumulhoot, E.		53.01.10	49.59.40,4	49.59.30	67	50.00.42,2	30.45.22,5 S.	19.15.19,7	19 17.05,5
E.	18th,	53.01.24	50.05.51,6	50.05.30	67	50.06.48		19.21.25,5	Ganjam Camp,
β Cassiopææ, W.		41.00.03	38.31.58	38.31.00	46	38.32.15	57.57.53 N.	19.25.38	19.23.32
Fumulhoot, E.	25th,	53.02.06	50.12.00,7	50.12.00	67	50. 3.07.5	30.45.22,5 S.	19.27.45	Piaghee,
β Cassiopææ, W.		41.00.03	38.27.34,7	38.26.50	45,6	38.27.58	57.57.50,0N	19.29.55	19.28.50
Fumulhoot, E.	26th,	43.02.14	50.15.31,7	50.15.30	67	50.16.38	30.45.22,5 S.	19.31.15,5	Maloodee,
β Cassiopææ, W.		40.03.25	38.23.11	38.23.10	45,6	38.23.56	57.57.53 N	19.33.57	19 32.36,5
Fumulhoot, E.	29th,	53.03.04	50.25.11,8	50.24.40	67	50.26.02	30.45.22,5 S.	19.40.40,5	Manickpatam,
α Andromedis, W.		8.02.29	8.10.52,2	8.10.50	8	8.10.59,1	27.53.59,0N.	19.43.00	

Phœnomenon and Face of the Quadrant.	Date.	Arch of 96. Reading.	Arch of 96. Value.	Arch of 90.	Equation applied.	Zenith Distance corrected.	Declination.	Latitude by the Observation.	Name of the Place and its correct Latitude.
	1784.								
	Nov.	D. S. D. N.	° ′ ″	° ′ ″	″	° ′ ″	° ′ ″	° ′ ″	° ′ ″
α Caſſiopeæ, W.	29th,	38.00.01	35.37.56,4	35.37.30	40,8	35.38.24	55.21.23.0	19.42.59	19.41.50
Fumulhoot, E.	Dec.	53.03.21	50.32.40	50.32.30	67	50.32.42	30.45.22.5 S.	19.48.19,5	Jaggernaut,
γ Pegaſi, E.	4th,	6.00.21	5.46.43.7	5.46.30	6	5.46.43	13.59.13.3 S.	19.45.56,3	
α Caſſiopeæ, W.		37.03.22	35.33.06,3	35.32.40	41	35.33.34,2	55.21.23 N.	19.47.49	
α Andromedis, W.		8.02.12	8.03.26	8.03.00	8	8.03.21	27.53.59 N.	19.50.38	19.41.50
α Andromedis, W.	7th,	8.01.21	7.53.17,5	7.53.20	8	7.53.27	27.53.59 N.	20.00.32	Ahmetpoore,
α Caſſiopeæ, W.		37.02.26	35.20.48	35.21.00	40	35.21.34	55.21.23 N.	19.59.49	
ε Caſſiopeæ, W.		15.01.24	42.35.52	42.36.00	52	42.36.44	62.36.07 N.	19.59.23	
γ Pegaſi, E.		6.01.06	5.54.12	5.54.00	6	5.54.12	13.59.13.3 N.	19.53.25,3	
η Ceti, E.		33.01.05	31.12.30,7	31.12.00	34	31.12.49,4	11.19.35 S	19.53.14,4	
θ Ceti, E.		31.00.17	29.11.13,3	29.10.30	32	29.11.23,6	9.17.47 S.	19.53.36,6	19.56.40,2
α Caſſiopeæ, W.		37.02.05	35.11.34,3	35.11.00	40	35.11.57	55.21.23 N.	20.09.26	Peeply,
Caſſiopeæ, W.	8th,	41.02.07	38.57.27,1	38.57.00	46	38.57.59,6	59.06.56 N	20.08.56	
η Ceti, E.		33.02.00	31.24.22,6	31.24.00	34,4	31.24.46	11.19.35 S.	20.05.11	20.07.11
α Andromedis, W.	9th,	8.00.08	7.33.31	7.33.00	6	7.33.23	27.53.59 N.	20.20.36	Ballunta
γ Pegaſi, E.		6.02.22	6.15.18	6.15.30	7,5	6.15.30	13.59.13 N.	20.14.43	20.17.40

Observations at large for determining the Latitudes of Places.

Phænomenon and Face of the Quadrant.	*Date.*	Arch of 96. *Reading.*	*Value.*	*Arch of 90.*	*Equation applied.*	*Zenith Distance corrected.*	*Declination.*	*Latitude by the Observation.*	*Name of the Place and its correct Latitude.*
	1784, Dec.	D. S. D. N.	° ′ ″	° ′ ″	″	° ′ ″	° ′ ″	° ′ ″	Sowlagunda,
γ Caſſiopeæ, W.	10th,	41.02.22	39.04.02,6	39.03 30	46	39.04.30	59.52.54 N.	20.28.21,7	near Kuttack,
								° ′ ″	
η Ceti, E.		33.03.13	31.43.59	31.43.30	35	31.44.20	11.19.35 S.	20.24.45	20.26.33,5
ε Caſſiopeæ, W.	15th.	44.02.16	41.50.09,4	41.49.40	51	41.50.45,7	62.36.07 N.	20.45.21,3	Koomereah River, north ſide,
α Piſcium, E.		20.00.29	18.57.44,7	18.57.40	19	18.58.01,4	1.43.03 N.	20.41.04,4	20.43.13
α Caſſiopeæ, W.	17th,	36.02.20	34.26.18,5	34.26.00	39	34.26.48,3	55.21.23 N.	20.54.34,7	Jehaujepoore River, N. ſide,
η Ceti E.		34.01.04	32.18.19,3	38.08.20	35	32.08.55	11.19 35 S.	20.49.20	20.51.57
γ Caſſiopeæ, W.	19th,	41.00.15	38.32.50,5	38.32.30	45	38 33.25,3	59.32.54 N.	20.59.28,7	Chorakootee,
δ Caſſiopeæ, W.		40.02.18	38.06.02,1	38.05.30	44	38.06.30	59 06.56 N.	21.00.26	
θ Ceti, E.		32.01.04	30.15.49,3	30.15.20	33,3	30.16.08	9.17.47 S.	20.58.21	20.59.09
β Caſſiopeæ, W.	20th,	44.00.29	31.27.44,7	41.27.30	50	41.28.27,4	62.36.07 N.	21.07.40,4	Raneeka Taulaub
δ Ceti, E.		23.00.29	21.42.06	21.42.00	22	21.42.25	0.36.32 S.	21.05.53	21.06.46
α Caſſiopeæ, W.	21ſt,	36.01.15	34.05.39,3	34.05.20	38	34.06.08	55.21.23 N.	21.15.15	Kaunſe Baunſe,
δ Caſſiopeæ, W.		40.01.16	37.51.05,7	37.51.00	44	37.51.47	59.06.56 N.	21.15.09	
γ Ceti, E.		34.02.24	32.31.10,3	02.30.40	36	32.31.31,2	11.19.35 S.	21.11.56,2	
β Ceti, E.		32.02.06	30.30.45,7	30.30.20	33	30.31.06	9.17.47 S.	21.13.19	21.13.52,3
α Caſſiopeæ, W.	22d,	36.00.24	33.55.33	33.55.30	38	33.56.09,5	55.21.23 N.	21.25.13,5	Aumnulla,
[illegible] E.		34.03.12	32.39.57,3	32.39.40	35,4	32.40.24	11.19.35 S.	21.20.49,0	21.23.01,2
[illegible]opeæ, W.	23d,	43.02.24	40.57.05,4	40.57,00	40,3	40.57.52	62.36.07 N.	21.38.14,3	Daumdurpoor,

Observations at large for determining the Latitudes of Places.

Phœnomenon and Face of the Quadrant.	*Date.*	Arch of 96. *Reading.*	*Value.*	*Arch of 90.*	*Equation applied.*	*Zenith Diſtance corrected.*	*Declination.*	*Latitude by the Obſervation.*	*Name of the Place and its correct Latitude.*
	1784.								
γ Andromedis,	Dec.	D. S. D. N.	° ′ ″	° ′ ″	″	° ′ ″	° ′ ″	° ′ ″	
W.	23d,	20.03.25	19.38.10,5	19.37.40	21,8	19.38.17	41.17.22 N.	21.39. 5,0	
α Piſcium, E.		21.00.24	19.51.48	19.51.00	21	19.51.45	1.43.03 N.	21.34.48,0	° ′ ″
ϑ Ceti, E.		23.02.18	22.09.47,2	22.10.00	22,4	22.10.16	0.36.32,0 S.	21.33.44,0	21.36.38
ε Caſſiopeæ, W.	24th,	43.02.06	40.49.10,8	40.49.00	49	40.19.54,4	62.36.07 N.	21.46.12,6	Soobanreeka River, at Rauje Gaut, on the Ballaſore ſide,
ϑ Ceti, E.		23.03.09	22.19.54	22.19.30	22	22.20.04	0.36.32 S.	21.43.32,0	
ε Caſſiopeæ, W.	26th,	43.01.30	40.46.10	40.46.00	49	40.46.54	62.36.07 N.	21.49.13,0	
ε Eridani, E.		34.00.06	31.55.08	31.55.08	35	31.55.43	10.13.26,6 S.	21.42.16,4	21.45.18,5
ϑ Caſſiopeæ, W.	27th,	39.03.02	37.16.49	37.16.00	48	37.17.13	59,06,56 N.	21.49.43	Jellaſore Camp
ϑ Ceti, E.		23.03.10	22.20.20	22.20.00	24	22.20.34	0.36.32 S.	21.44.02	21.46.53
ν Ceti, E.	28th,	35.01.27	33.14.40,6	33.14.00	38	33.14.58,3	11.19.35 S.	21.55.23,3	Dantoon Camp
ϑ Caſſiopeæ, W.		39.02.11	37.06.32,5	37.06.00	43	37.06.59,3	59.06.56 N.	21.59.56,7	21.57.40

Observations at large for determining the Latitudes of Places.

Phænomenon and Face of the Quadrant.		*Date.*	Arch of 96. *Reading.*	*Value.*	*Arch of 90.*	*Equation applied.*	*Zenith Distance corrected.*	*Declination.*	*Latitude by the Observation.*	*Name of the Place and its correct Latitude.*
		1784. Dec.	D.S.D.N.	° ′ ″	° ′ ″	″	° ′ ″	° ′ ″	° ′ ″	Khutnagar,
γ Caſſiopeæ,	W.	29th,	39.03.21	37.25.10	37.24.40	42	37.25.37	59 32.55,5 N.	22.07.18	° ′ ″
η Ceti,	E		35.02.06	33 19.30,6	33.19.10	37	33.19.57,3	11.19.35 S.	22.00.22	22.03.50
γ Caſſiopeæ,	W.	30th,	39.03.02	37.16.49	37.16.30	42	37.17.22	59.32.55,5 N.	22.15.33,5	Mokurrum-poor,
δ Caſſiopeæ,	W.		39.01.08	36.51.19,7	36.50 40	43	36.51.43	59.06.56 N.	22.15.13	
η Ceti,	E.		35.02.27,5	33.28.57,5	33.28.20	37	33.29.16	11.19.35 S.	22.09.41	22.12.32,1
γ Perſei,	W	31ſt,	32.00.29	30.12 44,7	30.13.00	33	30.13.25,4	52.37 59 N.	22.24.33,6	Kaſſai River,
β Perſei,	W.		18.03.14	17.40.50,4	17.40.30	18	17.40.58,2	40.06.50 N.	22.25.51,8	
ϑ Ceti,	E		24.01.26	22.55.29,3	22.55.00	24	22.55.39	00.36.32 S.	22.19 07	
12 Eridani,	E	Jan.	55.02.16	52.08.54,5	52.09.10	73	52.10.15,3	29.51.02 S.	22.19.13,3	22.22.11,3
δ Caſſiopeæ,	W.	4th,	39.00.10	36.38.08,7	36.37.40	42	36.38.36,3	59.06.56 S.	22.28.19,7	Midnapoor Fort,
ε Caſſiopeæ,	W.		42.03.07	40.07.46	40.07.30	48	40.08.26	62.36.07 N.	22.27.41	
	E.		24.02.00	22.58.07,5	22.58.00	24	22.58.48	00.36.32 S.	22.22.16	22.25.08,3

Phænomenon and Face of the Quadrant.		Date.	Arch of 96. Reading.	Value.	Arch of 90.	Equation applied.	Zenith Distance corrected.	Declination.		Latitude by the Observation.	Name of the Place and its correct Latitude.
		1784. Jan.	D.S.D.N.	° ′ ″	° ′ ″	″	° ′ ″	° ′ ″		° ′ ″	
Caſſiopææ,	W.	5th,	42.03.05	40.06.53	40.06.00	48	40.07.15	62.36.07	N.	22.28.52	Bunpoor,
											° ′ ″
δ Ceti,	E		24.02.06	23.00.46	23.00.30	24	23.01.02	00.36.32	S.	22.24.30	22.26.41
δ Caſſiopææ,	W.	6th,	38.03.12	36.24.57,7	36.25.00	43	36.25.42	59.06.56	N.	22.41.14	Narraindeowul,
12 Eridani,	E		55.03.22	52.25.36,4	52.25.30	75	52.26.48,2	29.51.02	S.	22.35.46,2	22.38.30
γ Perſei,	W.	7th,	31.03.09	29.49.53,6	29.49.20	33	29.50.10	52.37.59	N.	22.47.49	Madapoor,
12 Eridani,	E		56.00.10	52.34.24	52.34.40	74	52.35.46	29.51.02	S.	22.44.44	22.46.16,5
γ Perſei,	W.	8th,	31.03.05	29.48.03	29.47.50	33	29.48.32	52.37.59	N.	22.49.27	Chunderbund,
12 Eridani,	E		56.00.09	52.34.11	52.34.00	74	52.35.20	29.51.02	S.	22.44.18	22.46.52,5
γ Perſei,	W.	10th,	32 00.03	30.01.19,8	30.01.00	33	30.01.42,5	52.37.39	N.	22.36.16,5	Habra Gaut,
12 Eridani,	E		55.03.14	52.22.05,4	52.22.10	74	52.33.21,7	29.51.02	S.	22.32.19,7	22.34.18,1

Mr. BURROWS publiſhed, in the Lady's Diary, a Theorem ſimilar to mine, page 71: he ſhewed it to me laſt year. My original Book of Obſervations convinced him, that his Publication could not have been known to me when I wrote the Theorem.

2.P.123

Vol.

III.

A ROYAL GRANT OF LAND,

ENGRAVED ON A COPPER-PLATE, BEARING DATE TWENTY-THREE YEARS BEFORE CHRIST; AND DISCOVERED AMONG THE

RUINS AT MONGUEER.

Tranſlated from the Original Sanſcrit,

BY CHARLES WILKINS, Esq.

In the Year 1781.

DEB PAAL DEB.*

PROSPERITY!

HIS wiſhes are accompliſhed. His heart is ſtedfaſt in the cauſe of others. He walks in the paths of virtue. May the achievements of this fortunate Prince cauſe innumerable bleſſings to his People!

By diſplaying the ſtrength of his genius, he hath diſcovered the road to all human acquirements; for being a *Soogot* (1) he is Lord of the Univerſe.

Gopaal, King of the World, poſſeſſed matchleſs good Fortune: he was Lord of two Brides; the Earth and her Wealth. By compariſon of the learned, he was likened unto *Preetoo* (2,) *Sogor* (3,) and others, and it is credited.

When his innumerable army marched, the heavens were ſo filled with the duſt of their feet, that the birds of the air could reſt upon it.

* In this tranſlation the *Sanſcrit* names are written as they are pronounced in *Bengal*; but in the following paper, the tranſlator has adopted the more elegant pronunciation of *Varanes* and *Cashmir*.

He acted according to what is written in the *Shaastra*, (1,) and obliged the different sects to conform to their proper tenets. He was blessed with a son, *Dhorm Paal*, when he became independent of his forefathers, who are in heaven.

His elephants moved like walking mountains; and the earth, oppressed by their weight, and mouldered into dust, found refuge in the peaceful heavens.

He went to extirpate the wicked, and plant the good; and happily his salvation was effected at the same time: for his servants visited *Kedaar*, (2,) and drank milk according to the law: and they offered up their vows where the Ganges joins the Ocean, and at *Gokornaa*, (3,) and other places, (4).

When he had completed his conquests, he released all the rebellious Princes he had made captive; and each returning to his own country laden with presents, reflected upon this generous deed, and longed to see him again; as mortals, remembering a pre-existence, wish to return to the realms of light.

This Prince took the hand of the daughter of *Porobol*, Raajaa of many countries, whose name was *Ronnaa Debee*; and he became settled.

The people, being amazed at her beauty, formed different opinions of her. Some said it was *Lochee* (5) herself in her shape; others, that the earth had assumed her form: many said it was the Raajaa's fame and reputation; and others, that a household goddess had entered his palace. And her wisdom and virtue set her above all the ladies of the court.

This virtuous and praiſe-worthy Princeſs bore a ſon, *Deb Paal Deb*, as the ſhell of the ocean produces the pearl;

In whoſe heart there is no impurity; of few words, and gentle manners; and who peaceably inherited the kingdom of his father, as *Bodheesotwo* (1) ſucceeded *Soogot*.

He who, marching through many countries making conqueſts, arrived with his elephants in the foreſts of the mountains of *Beendhyo*, (2,) where ſeeing again their long-loſt families, they mixed their mutual tears; and who going to ſubdue other Princes, his young horſes meeting their females at *Komboge*, (3,) they mutually neighed for joy.

He who has opened again the road of liberality, which was firſt marked out in the *Kreto Joog* (4) by *Bolee*, (5,) in which *Bhaargob* (6) walked in the *Treetaa Joog*, (7,) which was cleanſed by *Korno* (8) in the *Dwapor Joog*, (9,) and was again choaked up in the *Kolee Joog* (10) after the death of *Sokodweesee* (11.)

He who conquered the earth from the ſource of the Ganges as far as the well-known bridge which was conſtructed by the enemy of *Dosaasyo* (12,) from the River of *Luckecool* (13) as far as the ocean of the habitation of *Boroon*, (14.)

At *Mood-go-gheeree*, (15,) where is encamped his victorious army, acroſs whoſe river a bridge of boats is conſtructed for a road, which is miſtaken for a chain of mountains, where immenſe herds of elephants, like thick black clouds, ſo darken the face of day, that people think it the ſeaſon of the rains; whither the Princes of the North ſend ſo many troops of horſe, that the duſt of their

their hoofs ſpreads darkneſs on all ſides; whither by many mighty Chiefs of *Jumboodweep* (1) reſort to pay their reſpects, that the earth ſinks beneath the weight of the feet of their attendants. There *Deb Paal Deb* (who, walking in the footſteps of the mighty Lord of the great *Soogots*, the great Commander, *Raajaa* of *Mohaa Raajaas*, *Dhormo Paal Deb*, is himſelf mighty Lord of the great *Soogots*, a great Commander, and *Raajaa of Mohaa Raajaas)* iſſues his commands. To all the inhabitants of the town of *Meseeka*, ſituated in *Kreemeelaa*, in the province of *Sree Nogor* (2,) which is my own property, and which is not divided by any land belonging to another; to all *Raanok* and *Kaaje-pootro;* to the (3) *Omaatyo*, *Mohaa-kaarttaa-kreeteeko*, *Mohaa-Dondo-Nayk*, *Mohaa Proteehaar*, *Mohaa-Saamont*, *Mohaa-Dow-Saadhon-Saadhoneeko*, *Mohaa-Koomaaraa-Matyo;* to the *Promaatree* and *Sorobhongo;* to the *Raajostaaneeyo*, *Ooporeeko*, *Daasaaporaadheeko*, *Chowroddhoroneeko*, *Daandeeko*, *Dondopaaseeko*, *Sowl-keeko*, *Gowlmeeko*, *Kyotropo*, *Praantopaalo*, *Koththopaalo* and *Kaandaarokyo;* to the *Todaajooktoko* and the *Beeneejooktoko;* to the keeper of the elephants, horſes, and camels; to the keeper of the mares, colts, cows, buffaloes, ſheep, and goats; to the *Dootoprysoneeko*, *Gomaa-Gomeeko*, and *Obheetworomaano;* to the *Beesoypotee*, *Toropotee*, and *Toreeko*. To the different tribes, *Gowr*, *Maalob*, *Khoso*, *Hoon*, *Koleeko*, *Kornaato*, *Laasaato*, and *Bhoto;* to all others of our ſubjects, who are not here ſpecified; and to the inhabitants of the neighbouring villages, from the *Braahmon* and fathers of large families, to the tribes of *Medo Ondhoroko*, and *Chondaalo*.

Be it known that I have given the above-mentioned town of *Meseeka*, whoſe limits include the fields where the cattle graze, above and below the ſurface, with all the lands belonging to it; together with all the *Mango* and *Modhoo* trees; all its waters, and all their banks and verdure; all its rents and tolls, with all fines for crimes, and

and rewards for catching thieves. In it there ſhall be no moleſtation, no paſſage for troops; nor ſhall any one take from it the ſmalleſt part. I give likewiſe every thing that has been poſſeſſed by the ſervants of the Raajaa. I give the Earth and Sky, as long as the Sun and Moon ſhall laſt. Except, however, ſuch lands as have been given to God, and to the *Braahmons*, which they have long poſſeſſed, and now enjoy. And that the glory of my father and mother, and my own fame, may be increaſed, I have cauſed this *Saaſon* (1) to be engraved, and granted unto the great *Botho Beehkoraato Meeſro*, who has acquired all the wiſdom of books, and has ſtudied the *Beads* (2) under *Oſlaayono*; who is deſcended from *Owpomonyobo*; who is the ſon of the learned and immaculate *Botho Boraahoraato*; and whoſe grandfather was *Botho Beeſworaato*, learned in the *Beads*, and expert in performing the *Jog* (3).

Know all the aforeſaid, that as beſtowing is meritorious, ſo taking away deſerves puniſhment; wherefore leave it as I have granted it. Let all his neighbours, and thoſe who till the land, be obedient to my commands. What you have formerly been accuſtomed to perform and pay, do it unto him in all things. Dated in the 33d *Sombot* (4,) and 21ſt day of the month of *Maargo*.

Thus ſpeak the following *Slokes* (5) from *Dhormo Onooſaaſon*:

1. "*Rám* hath required, from time to time, of all "the Raajaas that may reign, that the bridge of "their beneficence be the ſame, and that they do con- "tinually repair it.

2. "Lands have been granted by *Sogor*, and many "other Raajaas; and the fame of their deeds devolves "to their ſucceſſors.

3. "He

3. "He who diſpoſſeſſes any one of his property, "which I myſelf, or others, have given, may he, be- "coming a worm, grow rotten in ordure with his "forefathers!

4. "Riches, and the life of man, are as tranſient as "drops of water upon a leaf of the lotus. Learn- "ing this truth, O man! do not attempt to deprive "another of his reputation."

The Raajaa, for the public good, hath appointed his virtuous ſon, *Raajyo Paal*, to the dignity of *Jowbo Raajaa*. He is in both lines of deſcent illuſtrious, and hath acquired all the knowledge of his father.

NOTES.

Page 123. (1) *Soogot* ſignifies an atheiſt, or follower of the tenets of *Soogot*, a philoſopher, who is ſaid to have flouriſhed at a place called *Keekot*, in the province of *Behar*, one thouſand years after the commencement of the *Kolee Joog*, or *Iron Age*; of which this is the 4882d year. He believed in viſible things only, or ſuch as may be deduced from effects the cauſe of which is known; as from ſmoke the exiſtence of fire. He wrote many books to prove the abſurdity of the religion of the *Brahmans*; and ſome upon aſtronomy, and other ſciences, all which are ſaid to be now in being. He further held that all our actions are attended by their own rewards and puniſhments in this life; and that all animals, having an equal right to exiſtence with man, they ſhould not be killed either for ſport or food.

(2) *Pretoo* was the ſon of *Beno*, and *Raajaa* of a place called *Beetoor*, near *Lucknow*. He flouriſhed in the firſt age of the world, and is ſaid to have levelled the earth; and, having prepared it for cultivation, obliged the people to live in ſociety.

(3) *Sogor*, the name of a Raajaa who lived in the ſecond age at *Ojoodho*, and is ſaid to have dug the rivers.

Page 124. (1) *Shaaſtra*—book of divine ordinations. The word is derived from a root ſignifying to command.

(2) *Kedaar*—a famous place, ſituated to the north of Hindoſtan, viſited, to this day, on account of its ſuppoſed ſanctity.

(3) *Gokornaa*—a place of religious reſort, near *Punjab*.

(4) This and a few other paſſages appear inconſiſtent with the principles of a *Soogot*; to reconcile it, therefore, it ſhould be remarked, that, as he was iſſuing his orders to ſubjects of a different perſuaſion, it was natural for him to uſe a language the beſt calculated to ſtrike them with awe, and bind them to a performance of his commands. The *Pundit*, by whoſe aſſiſtance this tranſlation was made, when he was deſired to explain this ſeeming contradiction, aſked whether we did not, in our courts, ſwear a *Muſſulman* upon the *Koran*, and a *Hindoo* by the waters of the *Ganges*, although we ourſelves had not the leaſt faith in either.

(5) *Lockee*—the Hindoo Goddeſs of Fortune.

Page 125. (1) *Bodheeſotwo*—was the ſon of *Soogot*.

(2) *Beendhyo*—name of the mountains on the continent near *Ceylon*.

(3) *Komboge*—now called *Cambay*.

(4) *Kreeto Joog*—the firſt age of the world, ſometimes called the *Suttee Joog*, or age of purity.

(5) *Bolee*—a famous giant of the firſt age, who is fabled to have conquered earth, heaven, and hell.

(6) *Bhargob*—a *Brahman*, who, having put to death all the princes of the earth, uſurped the government of the whole.

(7) *Treetoo Joog*—the ſecond age, or of three parts good.

(8) *Kirno*

(8) *Korno*—a famous hero in the third age of the world. He was General to *Doorjodhon*, whoſe wars with *Joodiſteer* are the ſubjects of the *Mohabharat*, the grand epick poem of the Hindoos.

(9) *Dwapor Joog*—the third age of the world.

(10) *Kolee Joog*—the fourth or preſent age of the world, of which 4882 years are elapſed.

(11) *Sokodweeſee*—an epithet of *Beckromaadeetyo*, a famous Raajaa. He ſucceeded his brother *Sokaadeetyo*, whom he put to death.

(12) *Doſaaſyo*—one of the names of *Raabon*, whoſe wars with *Raam* are the ſubject of a poem called the *Raamayon*.

(13) *Luckeecool*—now called *Luckeepoor*.

(14) *Boroon*—God of the ocean.

According to this account the Raajaa's *dominions* extended from the Cow's Mouth to Adam's Bridge in *Ceylon*, ſaid to have been built by *Raam* in his wars with *Raabon*; from *Luckeepoor* as far as *Goozerat*.

(15) *Mood-go-gheeree*—now called *Mongueer*.

Page 126. (1) *Jumboodweep*—according to the Hindoo geography, implies the habitable part of the earth.

(2) *Sree Nogor*—the ancient name of *Patna*.

(3) *Omaatyo*, prime miniſter. *Mohaa-kaarttaa-kreeteeko*, chief inveſtigator of all things. *Mohaa-Dondo-Nayk*, chief officer of puniſhments. *Mohaa-Protee-haar*, chief keeper of the gates. *Mohaa-Saamonto*, generaliſſimo. *Mohaa-Dow-Saadhon-Saadhoneeko*, chief obviator of difficulties. *Mohaa-Koomaaraa-Matyo*, chief inſtructor of children. *Promaatree*, keeper of the records. *Sorobhongo*, patrols. *Raajoſtaaneeyo*, viceroy. *Ooporeeko*, ſuperintendant. *Daaſaaraadheeko*, inveſtigator of crimes. *Chow-rod-dho-roneeko*, thief-catcher. *Daandeeko*, mace-bearer. *Dondopaſeeko*, keeper of the inſtruments of puniſhment. *Sowl-keeko*, collector of cuſtoms. *Gowlmeeko*, commander of a ſmall party. *Kyotropo*, ſuperviſor of cultivation. *Praantopaalo*, guard of the ſuburbs. *Kothtopaalo*, commander of a fort. *Kaandaarokyo*, guard of the wards of the city. *Todaajooktoko*, chief guard of the wards. *Beeneejooktoko*, director of affairs. *Dootopryſoneeko*, chief of the ſpies. *Gomaa-Gomeeko*, meſſengers. *Obheevoromaano*, ſwift meſſengers. *Beeſoypotee*, governor of a city. *Toropotee*, ſuperintendant of the rivers. *Toreeko*, chief of the boats.

Page 127. (1) *Saaſon*—ſignifies an edict.

(2) *Beads*—Hindoo Scriptures.

(3) *Jog*—Sacrifice.

(4) *Sombot*—implies the æra of Raajaa *Beekromadeetyo*. The *Brahmans* throughout Hindoſtan keep time according to the three following epochas: The *Kolyobdo*, from the flight of *Kreeſhno*, or commencement of the *Kolee Joog*, 4882 years. The *Sombot*, from the death of *Beekromadeetyo*, 1837 years. The *Sokaabdo*, from the death of Raajaa *Soko*, 1703.

(5) *Slokes*—ſtanzas, commonly, but erroneouſly, written *Aſhlogues*.

VOL. I. PAGE 131

FRONT VIEW SIDE VIEW

SPECIMEN OF THE CHARACTER IN THE INSCRIPTION

IV.

AN

INSCRIPTION

ON A PILLAR NEAR BUDDAL.

TRANSLATED FROM THE SANSCRIT.

BY CHARLES WILKINS, ESQUIRE.

SOME time in the month of November, in the year 1780, I diſcovered, in the vicinity of the town of *Buddal*, near which the Company have a factory, and which at that time was under my charge, a decapitated monumental column, which at a little diſtance has very much the appearance of the trunk of a cocoa-nut tree broken off in the middle. It ſtands in a ſwamp overgrown with weeds, near a ſmall temple dedicated to *Hărgowrēē*, whoſe image it contains. Upon my getting cloſe enough to the monument to examine it, I took its dimenſions, and made a drawing of it; and ſoon after a plate was engraved, from which the accompanying is an impreſſion.

It is formed of a ſingle ſtone, of a dirty grey complexion; and it has loſt by accident a conſiderable part of its original height. I was told upon the ſpot that it had, in the courſe of time, ſunk conſiderably in the ground; but upon my digging about the foundation, I found this was not the caſe. At a few feet above the ground is an inſcription, engraved in the ſtone, from which I took two reverſed impreſſions with printer's ink. I have lately been ſo fortunate as to decypher the character; and I have the honour to lay before the Society a tranſcript of the original in the modern writing, and a tranſlation; and at the ſame time to exhibit the two impreſſions I took from the ſtone itſelf.

The

The original character of this inſcription is very different from the modern form; but it ſo much reſembles that on the plate found by COL. WATSON at *Mongueer*, that I am induced to conclude it to be the work of the ſame period. The language is *Sămſkrĕĕt*, and the whole is compriſed in twenty-eight metrical verſes of various meaſures.

CHARLES WILKINS.

14*th July*, 1785.

PROSPERITY!

PROSPERITY!

I.

VĒĒRĂ DEV was of the *Sāndĕĕlyă race*, (1;) from him was deſcended *Pānchāl;* of whoſe generation, and of whom, was *Gărgă* born.

II.

He, another *Săkră*, (2,) was ruler but of one quarter, and had no authority in other regions. He, too, was defeated by *Dityă* (3) chiefs; but, being a virtuous prince, he became ſupreme over every country without reſerve; and his conduct was ſuch, that he laughed *Vrĕăhăspatĕĕ* (4) to ſcorn.

III.

Eechā (5) was his wife; and like love, ſhe was the miſtreſs of his heart. She was admired for the native purity of her mind, and her beauty was like the light of the moon.

In

(1) A tribe of Brahmans ſtill extant.

(2) Eendra, the God of the Heavens, who is ſuppoſed to be the Guardian of the Eaſt.

(3) Evil Spirits. *Eendra* is ſaid to have loſt his kingdom, for a while, to the Aſoors, or evil ſpirits.

(4) The tutor of the good ſpirits, and the Planet Jupiter.

(5) Love, Deſire.

IV.

In his countenance, which was like the flower of the waters, (1,) were to be traced the lines of four ſciences, (2.) The three worlds were held in ſubjection by his hereditary high rank.

From theſe two was deſcended a *Brāhmăn* like *Kă-mălăyoněě*, (3,) and he took unto himſelf the name of *Srēē Dărbhă-pāněě*:

V.

Whoſe country (extending to *Rēvă-Jănăk*, (4;) to the father of *Gowrēē*, (5,) whoſe piles of rocks reek with the juice exuding from the heads of intoxicated elephants, and whoſe ſnow-white mountains are brightened by the ſun's rays; to the two oceans: to that whence *Arŏŏn* (6) riſeth from its bed, and to that wherein the ſun ſinketh in the weſt) the Prince *Srēē Dēv Pāl*, (7,) by his policy, rendered tributary:

VI.

At whoſe gates (although the proſpect, hidden by the duſt ariſing from the multitude of marching forces, was rendered clear from the earth, being watered by conſtant and

(1) The Lotus.
(2) Arms, Music, Mechanics, Physics.
(3) Brahma.
(4) Perhaps the *Narbadda*.
(5) The snowy Mountains that part India from Tartary. *Gowrēē*, one of the names of the *Parvatee*, the consort of *Seev*.
(6) The Charioteer of the Sun.—The Aurora of the Hindoos.
(7) If this be the Prince mentioned in the copper-plate found by Col. WATSON, he reigned at Mongueer above 1800 years ago.

and abundant ſtreams, flowing from the heads of luſtful elephants of various breeds) ſtood, ſcarce viſible, amongſt the vaſt concourſe of nobles flocking to his ſtandard from every quarter, *Srēē Dēv Pāl*, in expectation of his ſubmiſſion.

VII.

Whoſe throne that Prince (who was the image of *Ĕĕndrā*, and the duſt of whoſe feet was impreſſed with the diadems of ſundry potentates) himſelf aſcended with a flaſh of glory, although he had formerly been wont to offer him large ſums of *Pĕĕtās*, (1,) bright as the lunar rays.

VIII.

To him was born, of the Princeſs *Sărkărā*, the Brāhmăn *Sōmēſwăr*, who was like *Sōm*, (2,) the offſpring of *Atrĕĕ*, and a favourite of the Moſt High.

IX.

He adopted the manners of *Dhănănjay*, (3,) and did not exult over the ignorant and ill-favoured. He ſpent his riches amongſt the needy. He neither vainly accepted adulation, nor uttered honey words. His attendants were attached by his bounty; and becauſe of his vaſt talents, which the whole univerſe could not equal, he was the wonder of all good men.

Anxious

(1) A square coin.
(2) The Moon.
(3) One of the Sons of Pandoo, commonly called *Arjoon*.

X.

Anxious for a home and an aſylum, he took the hand of *Rănnā*, (1,) a Princeſs of his own likeneſs, according to the law, even as *Sĕĕv* the hand of *Sĕĕva*, (2,)—even as *Hărĕĕ* (3) the hand of *Lăkſhmēē*.

XI.

From this pair proceeded into life, burſting forth like *Gŏŏhā*, (4,) with a countenance of a golden hue, the fortunate *Kēdārā Mĕĕsră*, whoſe actions rendered him the favourite of heaven. The lofty diadem, which he had attained, ſhone with faultleſs ſplendor, kiſſing the vaſt circumference of the earth. His extenſive power was hard to be limited; and he was renowned for boundleſs knowledge, raiſed from his own internal ſource.

XII.

The ocean of the four ſciences, which had been at a ſingle draught drunk up, he brought forth again, and laughed at the power of *Agăstyă*, (5.)

XIII.

Truſting to his wiſdom, the king of *Gowr* (6) for a long time enjoyed the country of the eradicated race of *Ootkal*, (7,) of the *Hoons*, (8,) of humbled pride, of the kings

(1) A Princeſs of this name is alſo mentioned in Colonel WATSON's Plate.

(2) *Seeva* is the feminine of *Seev*.

(3) *Haree*, a name of *Veeshnoo*.

(4) *Gooha*, a name of *Karteek*.

(5) Who is ſaid to have drunk up the Ocean.

(6) The kingdom of *Gowr* anciently included all the countries which now form the kingdom of Bengal on this ſide the *Brahmapootra*, except *Mongueer*.

(7) Orixia.

(8) Huns.

kings of *Drăvĕĕr* (1) and *Gŏŏjăr*, (2,) whoſe glory was reduced, and the univerſal ſea-girt throne.

XIV.

He conſidered his own acquired wealth the property of the needy, and his mind made no diſtinction between the friend and the foe. He was both afraid and aſhamed of thoſe offences which condemn the ſoul to ſink again into the ocean of mortal birth; and he deſpiſed the pleaſures of this life, becauſe he delighted in a ſupreme abode.

XV.

To him, emblem of *Vrĕĕhăpătĕĕ*, (3,) and to his religious rites, the Prince *Srēē Sōōră Pāl* (who was a ſecond *Eendră*, and whoſe ſoldiers were fond of wounds) went repeatedly; and that long and happy companion of the world, which is girt with ſeveral oceans as with a belt, was wont, with a ſoul purified at the fountain of faith, and his head humbly bowed down, to bear pure water before him.

XVI.

Vănwā, of celeſtial birth, was his conſort, with whom neither the fickle *Lăkshmēē*, nor *Sătēē*, (4,) conſtant to her lord, were to be compared.

(1) A Country to the South of the Carnatick.
(2) Goozerat.
(3) The Preceptor of the good Spirits, and the Planet *Jupiter*.
(4) The Conſort of *Seev*.

XVII.

She, like another *Dēvăkēē*, (1,) bore unto him a ſon of high renown, who reſembled the adopted *Yăsōdhā*, (2,) and huſband of *Lăkshmēē*, (3.)

XVIII.

This youth, by name *Srēē Gŏŏrăvă Mĕĕsră*, was acquainted with all the conſtellations. He reſembled *Rām*, the ſon of *Jămădăgnĕĕ*, (4.) He was another *Rām*.

XIX.

His abilities were ſo great, that he was ſolicitous to diſcover the eſſence of things, wherefore he was greatly reſpected by the Prince *Srēē Nārāyăn Pāl*. What other honour was neceſſary?

XX.

His policy (who was of no mean capacity, and of a reputation not to be conceived) following the ſenſe of the *Vēds*, was of boundleſs ſplendor; and, as it were a deſcent of *Dhărmă*, the Genius of Juſtice. It was regulated by the example of thoſe who truſt in the power of ſpeech over things future, who ſtand upon the connexion of family, who are in the exerciſe of paying due

(1) The real mother of *Kreeshna*.

(2) The Foster-Mother of *Kreeshna*.

(3) *Rookmeenee*, the Conſort of *Kreeshna*. She is here called *Lakshmee*, in compliance with the idea of her being a deſcent of that Goddess.

(4) This is neither the Conqueror of *Ceylon*, nor the Brother of *Kreeshna*.

due praiſe to the virtues of great men, and who believe in the purity of *Aſtrology*.

XXI.

In him was united a lovely pair, *Lăkshmēē* and *Să-răswătēē*, the Diſpoſer of Fortune, and the Goddeſs of Science, who ſeemed to have forſaken their natural enmity, and to ſtand together pointing at Friendſhip.

XXII.

He laughed to ſcorn him who, in the aſſemblies of the learned, was intoxicated with the love of argument, and confounded him with profound and elegant diſcourſes framed according to the doctrine of the *Sāstrăs*; and he ſpared not the man who, becauſe of his boundleſs power and riches, was overwhelmed with the pride of victory over his enemy in the field.

XXIII.

He had a womb, but it obſtinately bore him no fruit. One like him can have no great reliſh for the enjoyments of life. He never was bleſſed with that giver of delight, by obtaining which a man goeth unto another almoner, (1.)

(1) He had no Iſſue to perform the *Sradh* for the release of his Soul from the Bonds of Sin. By *another Almōner* is meant the Deity.

XXIV.

He, who was, as it were, another *Vālmēēkēē*, (1,) born in this dark age of impiety, amongſt a dreadful and a cruel race of mortals, was a devout man, who diſplayed the learning of the *Vēds* in books of moral tales.

XXV.

His profound and pleaſing language, like *Gănga*, flowing in a triple courſe (2) and conſtant ſtream, purifieth and delighteth.

XXVI.

He, to whom, and to thoſe of whoſe generation, men were wont to reſort as it were to *Brăhmā*, waited ſo long in expectation of being a father, that, at length, he himſelf arrived at the ſtate of a child.

XXVII.

By him was recorded here upon this laſting column, the ſuperior beauty of whoſe ſhaft catcheth the eye of the beholder, whoſe aſpiring height is as boundleſs as his own ideas, which is, as it were, a ſtake planted in the breaſt of *Kălēē*, (3,) and on whoſe top ſits *Tārkshyă*, (4,) the foe of ſerpents, and favourite bird of *Haree*, the line of his own deſcent.

XXVIII.

(1) The firſt Poet of the Hindoos, and ſupposed Author of the *Ramayan*.
(2) He is ſupposed to have written in three languages.
(3) Time.
(4) Otherwiſe called *Garoor*.

XXVIII.

Gărŏŏr, like his fame, having wandered to the extremity of the world, and deſcended even unto its foundation, was exalted here with a ſerpent in his mouth.

This work was executed by the artiſt *Bĕĕndŏŏ Bhădră*.

Remarks

Remarks on the two preceding Papers.

By the PRESIDENT.

NO man has greater respect than myself for the talents of Mr. WILKINS, who, by decyphering and explaining the old *Sanscrit* Inscriptions lately found in these provinces, has performed more than any other *European* had learning enough to accomplish, or than any *Asiatick* had industry enough even to undertake: but some doubts having arisen in my mind concerning a few passages in the two preceding Translations, I venture to propose them in the form of Notes with entire deference to his judgment.

P. 123. *l.* 11. *This fortunate Prince*—Is not the first couplet in honour of BUDDHA, one of whose names, in the *Amarcosh*, is SUGATA? A *follower* of his tenets would have been denominated a *Saugat*, in the derivative form. We must observe, that the *Bauddhs*, or *Saugats*, are called *Atheists* by the *Brahmins*, whom they oppose; but it is mere invective; and this very grant fully disproves the calumny, by admitting a future state of rewards and punishments. SUGAT was a reformer; and every reformer must expect to be calumniated.

P. 123. *l.* 18. *When his innumerable army*—The third stanza in the original is here omitted, either by an oversight, or because the same image of *weeping elephants* occurs afterwards, and might have been thought superfluous in this place; nevertheless, I insert a literal translation of it.

"By whom, having conquered the earth as far as the ocean, it *was* left, as being unprofitably seized; so *he declared: and his* elephants weeping saw again in the forests their kindred, whose-eyes-*were*-full-of-tears."

P. 124. *l.* 18. *Of many countries*—The *Pandits* insist that *Rashtracuta*, in the original, is the name of a particular country.

P. 127. *l.* 18. *Dated in the 33d Sombat*—That is, *year;* for *Samvat* is only an abbreviation of *Samvatsara*. This date, therefore, might only mean the thirty-third year *of the King's reign;* but, since VICRAMADITYA was surnamed *the foe of* SACA, and is praised by that name in a preceding stanza, we may safely infer, that the grant was dated thirty-three years after the date of that illustrious Emperor, whom the king of *Gaur*, though a Sovereign Prince, acknowledged as lord paramount of *India*.

P. 133. Verse II. *A virtuous Prince*—Many stanzas in this inscription prove, that the *Sandilya* family were not *Princes;* but that some of them were Prime *Ministers* to the Kings of *Gaur*, or *Bengal*, according to this comparative genealogy:

Kings.

Kings.	Ministers.*
GOPALA.	PANCHALA.
DHERMAPALA.	GARGA.
DEVAPALA. B. C. 23.	* DERBHAPANI.
RAJYAPALA.	SOMESWARA.
SURAPALA.	* CEDARAMISRA.
NARAYANAPALA. A. C. 67.	* GURAVAMISRA.

So that reckoning thirty years to a generation, we may date the Pillar of GURAVAMISRA in the sixty-seventh year *after* CHRIST. A *Pandit*, named RADHACANTA, with whom I read the original, appeared struck with my remark on the two families, and adopted it without hesitation; but if it be just, the second stanza must be differently interpreted. I suspect *Dharma*, the Genius of *Justice* or *Virtue*, to be the true reading, instead of *Dharmya*, or *virtuous*; and have no doubt that *puro* must be substituted for *paro*: the sense will then be, that INDRA *was ruler in the East only*; and, *though valiant, had been defeated even there by the Daityas* or *Titans; but that* DHARMA *was made Sovereign over him in all quarters.*

P. 134, Verse V. *Whose country*—The original is:

à révájanacánmatangajamadastimyachch'hilàsanghatéh,
à gauripituríswarén*dra*ciranaihpushyatsitimnógiréh,
mártan"dástamayódayárún'ajalád á vár'irásidwayàt,
nítyà yasya bhuwan chacára caradán sri dévapálò nrípah.

The father of *Reva* is the *Mahendra* mountain in the south, in which that river has its source; as the father of GAURI is the *Himalaya* in the north, where ISWARA, who has a *moon* on his forehead, is believed often to reside: hence RADHACANTA proposed a conjectural emendation, which would have done honour to SCALIGER or BENTLEY. Instead of *Indra*, which is a name of the *Sun*, he reads *Indu*, or the *Moon*, by changing only a small straight line into a small curve; and then the stanza will run thus:

By whose policy the great Prince DEVLPALA made the earth tributary, from the father of *Reva*, whose-piles-of-rocks-are-moist-with-juice-from-the-heads-of-lascivious-elephants, to the father-of-GAURI, whose-white-mountains-are-brightened-with-beams-from-the-moon-of-ISWARA;-*and* as far as the-two-oceans-whose-waters-are-red-with-the-rising-and-with-the-setting-Sun.

The words connected by hyphens are compounds in *Sanscrit*.

P. 135. Verse VI. *Submission*—I understand *avasara* in this place, to mean the *leisure* of the Minister from public affairs, for which even the King waited at the head of his army.

P. 135.

P. 135. Verse VII. *Sums of Peetas*—The common sense of *pit'ha* is a *chair, seat,* or *throne*; and in this sense it occurs in the thirteenth verse. *Udupachch'habipit'ham,* or *with-a-seat-bright-as-the moon,* appears to be the compound epithet of *asanam,* or *chair of state,* which, though the King had often given to his Ministers, yet, abashed by his wisdom, and apprehensive of his popularity, he had himself ascended his throne *with fear.*

P. 136. Verse X. The tenth stanza is extremely difficult, as it contains many words with two meanings, applied in one sense to the Minister CEDARA MISRA; but, in another, to CARTICEYA, the *Indian* Mars: thus, in the first hemistich, *s' ic'hin* means *fire,* or a *peacock; s' ic'ha, a bright flame,* or a *crest;* and *s' acti,* either *power* or a *spear.* As the verse is differently understood, it may be a description of the *Brahmen,* or of the Deity.

P. 136. Verse XII. The *Brahmans* of this province insist, that by the four *Vidya's,* or branches of *knowledge,* are meant the four *Vedas,* not the *Upaveda's,* or *Medicine, Archery, Musick,* and *Mechanicks;* and they cite two distichs from the *Agnipurana,* in which *eighteen Vidya's* are enumerated, and among them the *four Vedas; three* only of which are mentioned in the *Amarcosh,* and in several older books. In this verse also RADHACANT has displayed his critical sagacity: instead of *nala* he reads *bala;* and, if his conjecture be right, we must add, "*even* when he was a *boy.*"

P. 137. Verse XVI. *Constant to her lord*—RADHACANT reads *anapatyaya,* or *childless,* for *anupatyaya;* SATI having borne *no children* till she became regenerate in the person of PARVATI.

P. 139. Verse XXIII. *It obstinately bore him no fruit.*—The original stanza is uncommonly obscure: it begins with the words *yonirbabhuva,* the two first syllables of which certainly mean a *womb:* but several *Pandits,* who were consulted apart, are of opinion, that *yo* is the relative, of which some word in the masculine gender, signifying *speech,* is the antecedent, though not expressed: they explain the whole stanza thus—"*That speech,* which came forth "*(nirbabhuva)* inconsiderately, of which *there was* no fruit, *he was* "*a man* who spoke nothing of that kind for his own gratification: "*he was a man* also, by whom no present-of-playthings was ever "*given,* which the suppliant having received, goes to another *more* "*bountiful* giver." If the relative had been *yan* in the *neuter* gender, I should have acquiesced in the translation offered by the *Pandits;* but the suppression of so material a word as *speech,* which, indeed, is commonly *feminine* in *Sanscrit,* appears unwarrantably harsh according to *European* ideas of construction.

P. 140. Verse XXVI. If the preceding interpretation be just, the object of the Pillar was to perpetuate the names of GURAVA MISRA and his ancestors; and this verse must imply, that *he expected to receive from his own sons, the pious offices which he had performed to his forefathers.*

V.

SOME ACCOUNT

OF THE

SCULPTURES AND RUINS

AT MAVALIPURAM,

A Place a few Miles North of Sadras, *and known to Seamen by the Name of the* Seven Pagodas.

By WILLIAM CHAMBERS, Esq.

AS amidſt inquiries after the hiſtories and antiquities of *Aſia* at large, thoſe of that diviſion of it in which this Society reſides, may ſeem on many accounts to lay claim to a particular ſhare of its attention, a few hints put down from recollection, concerning ſome monuments of *Hindoo* antiquity, which, though ſituated in the neighbourhood of *European* ſettlements on the *Choromandel* coaſt, have hitherto been little obſerved, may, it is conceived, be acceptable, at leaſt as they may poſſibly give riſe hereafter to more accurate obſervations, and more complete diſcoveries on the ſame ſubject. The writer of this account went firſt to view them in the year 1772, and curioſity led him thither again in 1776; but as he neither meaſured the diſtances nor ſize of the objects, nor committed to writing at the time, the obſervations he made on them, he hopes to be excuſed if, after the lapſe of ſo many years, his recollection ſhould fail him in ſome reſpects, and his account fall far ſhort of that preciſion and exactneſs, which might have been expected, had there then exiſted in *India*, ſo powerful an incentive to diligent enquiry, and accurate communication, as the eſtabliſhment of this Society muſt now prove.

The

The monuments he means to deſcribe, appear to be the remains of ſome great city, that has been ruined many centuries ago; they are ſituated cloſe to the ſea, between *Covelong* and *Sadras*, ſomewhat remote from the high road that leads to the different *European* ſettlements. And when he viſited them in 1776, there was ſtill a native village adjoining to them, which retained the ancient name, and in which a number of *Bramins* reſided, that ſeemed perfectly well acquainted with the ſubjects of moſt of the Sculptures to be ſeen there.

The rock, or rather hill of ſtone, on which great part of theſe works are executed, is one of the principal marks for mariners as they approach the coaſt, and to them the place is known by the name of the *Seven Pagodas*, poſſibly becauſe the ſummits of the rock have preſented them with that idea as they paſſed: but it muſt be confeſſed, that no aſpect which the hill aſſumes, as viewed on the ſhore, ſeems at all to authorize this notion; and there are circumſtances, which will be mentioned in the ſequel, that would lead one to ſuſpect, that this name has ariſen from ſome ſuch number of Pagodas that formerly ſtood here, and in time have been buried in the waves. But, be that as it may, the appellation by which the natives diſtinguiſh it, is of a quite different origin: in their language, which is the *Tamulic*, (improperly termed *Malabar*,) the place is called *Mâvalipuram*, which, in *Shanſcrit*, and the languages of the more northern *Hindoos*, would be *Mahâbalipûr*, or the *City of the great Bali*. For the *Tamulians*, (or *Malabars*,) having no *h* in their alphabet, are under a neceſſity of ſhortening the *Shanſcrit* word Mahâ, *great*, and write it *mâ*.* They are obliged alſo, for a ſimilar reaſon, to ſubſtitute a *v* for a *b*, in words of *Shanſcrit*, or other foreign original, that begin with that letter; and the ſyllable *am*, at the end, is merely a termination,

* They do indeed admit a substitute, but the abbreviation is most used.

mination, which, like *um* in *Latin*, is generally annexed to neuter ſubſtantives*. To this etymology of the name of this place it may be proper to add, that *Bălĭ* is the name of an hero very famous in *Hindoo* romance; and that the river *Mávaligonga*, which waters the eaſtern ſide of *Ceylone*, where the *Tamulic* language alſo prevails, has probably taken its name from him, as, according to that orthography, it apparently ſignifies the *Ganges* of the great *Bălĭ*.

The rock, or hill of ſtone, above mentioned, is that which firſt engroſſes the attention on approaching the place; for, as it ariſes abruptly out of a level plain of great extent, conſiſts chiefly of one ſingle ſtone, and is ſituated very near to the ſea beach, it is ſuch a kind of object as an inquiſitive traveller would naturally turn aſide to examine. Its ſhape is alſo ſingular and romantic, and, from a diſtant view, has an appearance like ſome antique and lofty edifice. On coming near to the foot of the rock from the north, works of imagery† and ſculpture croud ſo thick upon the eye, as might ſeem to favour the idea of a petrified town, like thoſe that have been fabled in different parts of the world by too credulous travellers‡. Proceeding on by the foot of the hill, on the ſide facing the ſea, there is a pagoda riſing out of the ground of one ſolid ſtone, about ſixteen or eighteen feet high, which ſeems to have been cut upon the ſpot out of a detached rock, that has been found

* This explains also, why the *Shanscrit* word *Vêd*, by which the *Hindoos* denominate the Books of the Law of their Religion, is written by the *Tamulians*, *Vêdam*, which is according to the true orthography of their language, and no miſtake of *European* travellers, as ſome have ſuppoſed; while the ſame word is called *Bêd* by the *Bengalies*, who have, in effect, no *V* in their alphabet.—See Dow, Vol. I. Diſſert. p. 41.

† Among theſe one object, though a mean one, attracts the attention, on account of the groteſque and ridiculous nature of the deſign; it conſiſts of two monkies cut out of one ſtone, one of them in a ſtooping poſture, while the other is taking the inſects out of his head.

‡ See Shaw's Travels, p. 155, et ſeq.

found of a proper ſize for that purpoſe. The top is arched, and the ſtyle of architecture according to which it is formed, different from any now uſed in thoſe parts. A little further on there appears upon a huge ſurface of ſtone, that juts out a little from the ſide of the hill, a numerous group of human figures in baſs-relief, conſiderably larger than life, repreſenting the moſt remarkable perſons whoſe actions are celebrated in the *Mahâbharit*, each of them in an attitude, or with weapons, or other inſignia, expreſſive of his character, or of ſome one of his moſt famous exploits. All theſe figures are, doubtleſs, much leſs diſtinct than they were at firſt; for, upon comparing theſe and the reſt of the ſculptures that are expoſed to the ſea air, with others at the ſame place, whoſe ſituation has afforded them protection from that element, the difference is ſtriking; the former being every where much defaced, while the others are freſh as recently finiſhed. This defacement is no where more obſervable than in the piece of ſculpture which occurs next in the order of deſcription. This is an excavation in another part of the eaſt ſide of the great rock, which appears to have been made on the ſame plan, and for the ſame purpoſe, that Chowltries are uſually built in that country, that is to ſay, for the accommodation of travellers. The rock is hollowed out to the ſize of a ſpacious room, and two or three rows of pillars are left, as a ſeeming ſupport to the mountainous maſs of ſtone which forms the roof. Of what pattern theſe pillars have originally been, it is not eaſy now to conjecture; for the air of the ſea has greatly corroded them, as well as all the other parts of the cave. And this circumſtance renders it difficult to diſcover, at firſt ſight, that there is a ſcene of ſculpture on the ſide fronting the entrance. The natives, however, point it out; and the ſubject of it is manifeſtly that of *Kriſhen* attending the herds of *Nund Ghoſe*, the *Admetus* of the *Hindoos*; from which circumſtance *Kriſhen* is alſo called *Goupaul*, or the cowherd, as *Apollo* was entitled *Nomius*.

The

The objects that seem next to claim regard, are those upon the hill itself, the ascent of which, on the north, is, from its natural shape, gradual and easy at first, and is in other parts rendered more so by very excellent steps cut out in several places, where the communication would be difficult or impracticable without them. A winding stair of this sort leads to a kind of temple cut out of the solid rock, with some figures of idols in high relief upon its walls, very well finished, and perfectly fresh, as it faces the west, and is therefore sheltered from the sea air. From this temple again there are flights of steps, that seem to have led to some edifice, formerly standing upon the hill; nor does it seem absurd to suppose, that this may have been a palace, to which this temple, as a place of worship, may have appertained. For, besides the small detached ranges of stairs that are here and there cut in the rock, and seem as if they had once led to different parts of one great building, there appear in many places, small water channels cut also in the rock, as if for drains to a house; and the whole top of the hill is strewed with small round pieces of brick, which may be supposed, from their appearance, to have been worn down to their present form during the lapse of many ages. On ascending the hill by its slope on the north, a very singular piece of sculpture presents itself to view. On a plain surface of the rock, which may once have served as the floor of some apartment, there is a platform of stone, about eight or nine feet long, by three or four wide, in a situation rather elevated, with two or three steps leading up to it, perfectly resembling a couch or bed, and a lion very well executed at the upper end of it by way of pillow, the whole of one piece, being part of the hill itself. This the *Brahmins*, inhabitants of the place, called *the bed of Dhermarâjah* or *Judishter*, the eldest of the five brothers whose fortunes and exploits are the leading subject in the *Mahabhârit*. And at a considerable distance from this, at such a distance, indeed, as the apartment of the women might be supposed

poſed to be from that of the men, is a bath excavated alſo from the ſolid rock, with ſteps in the inſide, which the *Bramins* call the bath of *Dropedy*, the wife of *Judiſhter*, and his brothers. How much credit is due to this tradition, and whether this ſtone couch may not have been anciently uſed as a kind of throne rather than a bed, is matter for future inquiry. A circumſtance, however, which may ſeem to favour this idea is, that a throne in the *Shanſcrit*, and other *Hindoo* languages, is called *Singhâſen*, which is compoſed of the words *Sing*, a lion; and *âſen*, a ſeat.

Theſe are all that appear on that part of the upper ſurface of the hill, the aſcent to which is on the north; but, on deſcending from thence, you are led round the hill to the oppoſite ſide, in which there are ſteps cut from the bottom to a place near the ſummit, where is an excavation that ſeems to have been intended for a place of worſhip, and contains various ſculptures of *Hindoo* deities. The moſt remarkable of theſe is a gigantic figure of *Viſhnoo*,* aſleep on a kind of bed, with a huge ſnake wound about in many coils by way of pillow for his head; and theſe figures, according to the manner of this place, are all of one piece, hewn from the body of the rock.

But though theſe works may be deemed ſtupendous, they are ſurpaſſed by others that are to be ſeen at the diſtance of about a mile, or a mile and a half, to the ſouthward of the hill. They conſiſt of two Pagodas, of about thirty feet long by twenty feet wide, and about as many in heighth, cut out of the ſolid rock, and each conſiſting originally of one ſingle ſtone. Near theſe alſo ſtand an elephent full as big as life, and a lion much

larger than the natural ſize, but very well executed, each hewn alſo out of one ſtone. None of the pieces that have fallen off in cutting theſe extraordinary ſculptures, are now to be found near or any where in the neighbourhood of them, ſo that there is no means of aſcertaining the degree of labour and time that has been ſpent upon them, nor the ſize of the rock or rocks from which they have been hewn, a circumſtance which renders their appearance the more ſtriking and ſingular. And though their ſituation is very near the ſea-beach, they have not ſuffered at all by the corroſive air of that element, which has provided them with a defence againſt itſelf, by throwing up before them a high bank, that completely ſhelters them. There is alſo great ſymmetry in their form; though that of the Pagodas is different from the ſtyle of architecture according to which idol temples are now built in that country. The latter resemble the *Egyptian;* for the towers are always pyramidical, and the gates and roofs flat, and without arches; but theſe ſculptures approach nearer to the *Gothic* taſte, being ſurmounted by arched roofs or domes, that are not ſemicircular, but compoſed of two ſegments of circles meeting in a point at top. It is alſo obſervable, that the lion in this group of ſculptures, as well as that upon the ſtone couch above mentioned, are perfectly juſt repreſentations of the true lion; and the natives there give them the name which is always underſtood to mean a lion in the *Hindoo* language, to wit, *Sing:* but the figure which they have made to repreſent that animal in their idol temples for centuries paſt, though it bears the ſame appellation, is a diſtorted monſter, totally unlike the original; inſomuch, that it has from hence been ſuppoſed that the lion was not anciently known in this country, and that *Sing* was a name given to a monſter that exiſted only in *Hindoo* romance. But it is plain that that animal was well known to the authors of theſe works, who, in manners as well as arts, ſeem to have differed much from the modern *Hindoos.*

There

There are two circumſtances attending theſe monuments, which cannot but excite great curioſity, and on which future inquiries may poſſibly throw ſome light. One is, that on one of the Pagodas laſt mentioned, there is an inſcription of a ſingle line, in a character at preſent unknown to the *Hindoos*. It reſembles neither the *Deyva-nâgre*, nor any of the various characters connected with or derived from it, which have come to the writer's knowledge from any part of *Hindoſtan*. Nor did it, at the time he viewed it, appear to correſpond with any character, *Aſiatick* or *European*, that is commonly known. He had not then, however, ſeen the alphabet of the *Balic*, the learned language of the *Siameſe*, a ſight of which has ſince raiſed in his mind a ſuſpicion that there is a near affinity between them, if the character be not identically the ſame. But as theſe conjectures, after ſuch a lapſe of time, are ſomewhat vague, and the ſubject of them is perhaps yet within the reach of our reſearches, it is to be hoped that ſome method may be fallen upon of procuring an exact copy of this inſcription.

The other circumſtance is, that though the outward form of the Pagodas is complete, the ultimate deſign of them has manifeſtly not been accompliſhed, but ſeems to have been defeated by ſome extraordinary convulſion of nature. For the weſtern ſide of the moſt northerly one is excavated to the depth of four or five feet, and a row of pillars left on the outſide to ſupport the roof: but here the work has been ſtopped, and an uniform rent of about four inches breadth has been made throughout the ſolid rock, and appears to extend to its foundations, which are probably at a prodigious depth below the ſurface of the ground. That this rent has happened ſince the work was begun, or while it was carrying on, cannot be doubted; for the marks of the maſon's tools are perfectly viſible in the excavated part on both ſides of the rent, in ſuch a manner as to ſhow plainly

that

that they have been divided by it. Nor is it reaſonable to ſuppoſe that ſuch a work would ever have been deſigned, or begun, upon a rock that had previouſly been rent in two.

Nothing leſs than an earthquake, and that a violent one, could apparently have produced ſuch a fiſſure in the ſolid rock; and that this has been the caſe in point of fact, may be gathered from other circumſtances, which it is neceſſary to mention in an account of this curious place.

The great rock above deſcribed, is at ſome ſmall diſtance from the ſea, perhaps fifty or an hundred yards, and in that ſpace the *Hindoo* village before mentioned ſtood in 1776. But cloſe to the ſea are the remains of a Pagoda, built of brick, and dedicated to *Síb*, the greateſt part of which has evidently been ſwallowed up by that element: for the door of the innermoſt apartment, in which the idol is placed, and before which there are always two or three ſpacious courts ſurrounded with walls, is now waſhed by the waves; and the pillar uſed to diſcover the meridian at the time of founding the Pagoda*, is ſeen ſtanding at ſome diſtance in the ſea. In the neighbourhood of this building there are ſome detached rocks, waſhed alſo by the waves, on which there appear ſculptures, though now much worn and defaced. And the natives of the place declared to the writer of this account, that the more aged people among them remembered to have ſeen the tops of ſeveral pagodas far out in the ſea, which being covered with copper, (probably gilt,) were particularly viſible at ſun-riſe, as their ſhining ſurface uſed then to reflect the ſun's rays; but that now that effect was no longer produced, as the copper had ſince become incruſted with mould and verdigreaſe.

* See Voyage du M. Gentil, Vol. I. page 158.

Theſe circumſtances look much like the effects of a ſudden inundation; and the rent in the rock above deſcribed, makes it reaſonable to conjecture, that an earthquake may have cauſed the ſea to overflow its boundaries, and that theſe two formidable enemies may have joined to deſtroy this once magnificent city. The account which the *Bramins*, natives of the place, gave of its origin and downfal, partly, it ſhould ſeem, on the authority of the *Mahabhârit*, and partly on that of later records, at the ſame time that it countenances this idea, contains ſome other curious particulars, which may ſeem to render it worthy of attention. Nor ought it to be rejected on account of that fabulous garb, in which all nations, but eſpecially thoſe of the eaſt, have always clad the events of early ages.

" *Hirinâcheren* (ſaid they) was a gigantick Prince, " that rolled up the earth into a ſhapeleſs maſs, and " carried it down to the abyſs, whither *Viſhnoo* fol- " lowed him in the ſhape of an hog, killed him with " his tuſks, and replaced the earth in its original ſitua- " tion. The younger brother of *Hirinâcheren* was " *Hirinakaſſap*, who ſucceeded him in his kingdom, " and refuſed to do homage to *Viſhnoo*. He had a ſon, " named *Pralhaud*, who, at an early age, openly diſap- " proved this part of his father's conduct, being under " the tuition of *Sokerâchârj*. His father perſecuted " him on this account, baniſhed him, and even fought " to kill him, but was prevented by the interpoſition " of heaven, which appeared on the ſide of *Pralhaud*. " At length *Hirinakaſſap* was ſoftened, and recalled " his ſon to his court, where, as he ſat in full aſſem- " bly, he began again to argue with him againſt the " ſupremacy of *Viſhnoo*, boaſted that he himſelf was " lord of all the viſible world, and aſked what *Viſh-* " *noo* could pretend to more. *Pralhaud* replied, that " *Viſhnoo* had no fixed abode, but was preſent every " where. 'Is he (ſaid his father) in that pillar?' 'Yes,' " returned *Pralhaud*. " Then let him come forth,"

" ſaid *Hirinakaſſap*; and, riſing from his ſeat, ſtruck " the pillar with his foot; upon which *Viſhnoo*, in the " *Narøſinghah Awtâr*, that is to ſay, with a body like " a man, but an head like a lion, came out of the pil- " lar, and tore *Hirinakaſſap* in pieces. *Viſhnoo* then " fixed *Pralhaud* on his father's throne; and his reign " was a mild and virtuous one, and as ſuch was a con- " traſt to that of his father. He left a ſon, named *Na-* " *machee*, who inherited his power and his virtues, and " was the father of *Balee*, the founder of the once mag- " nificent city of *Mahâbalipoor*, the ſituation of which " is ſaid to be deſcribed in the following verſe, taken " from the *Mahabhârit*."

গঙ্গায়াঃ দক্ষিণে তীরে যোজনানাং শতদ্বয়ং
পঞ্চযোজন যাত্রো পর্ব্বতারিরিস্তু পশ্চিমে—

The ſenſe of which is literally this:

" South of the *Ganges* two hundred Yojen,
" Five Yojen* weſtward from the Eaſtern Sea."

Such is the *Bramin* account of the *origin* of this place. The *ſequel* of its hiſtory, according to them, is as follows:

* The *Yojen* is a measure often mentioned in the *Shanscrit* books, and, according to ſome accounts, is equal to nine, according to others, twelve, *Engliſh* miles. But at that rate the diſtance here mentioned, between this place and the *Ganges*, is prodigiously exaggerated, and will carry us far ſouth of *Ceylone*. This, however, is not ſurpriſing in an *Hindoo* poem; but, from the ſecond line, it ſeems pretty clear, that this city, at the time this verſe was compoſed, muſt have ſtood at a great diſtance from the ſea.

" The ſon of *Balee* was *Banâcheren*, who is repre-
" ſented as a giant with a thouſand hands. *Anuredh*,
" the ſon of *Kriſhen*, came to his court in diſguiſe, and
" ſeduced his daughter, which produced a war, in the
" courſe of which *Anuredh* was taken priſoner, and
" brought to *Mahabâlipoor*; upon which *Kriſhen* came
" in perſon from his capital, *Duârikah*, and laid ſiege
" to the place. *Sîb* guarded the gates, and fought for
" *Banâcheren*, who worſhipped him with his thouſand
" hands: but *Kriſhen* found means to overthrow *Sîb*,
" and having taken the city, cut off all *Banâcheren's*
" hands, except two, with which he obliged him to do
" him homage. He continued in ſubjection to *Kriſhen*
" till his death; after which a long period enſued, in
" which no mention is any where made of this place,
" till a prince aroſe, whoſe name was *Malêcheren*, who
" reſtored the kingdom to great ſplendor, and en-
" larged and beautified the capital." But in his time the calamity is ſaid to have happened by which the city was entirely deſtroyed; and the cauſe and manner of it have been wrapt up by the *Bramins* in the following fabulous narration. " *Malêcheren*, (ſay they,) in an excurſion which he made one day alone,
" and in diſguiſe, came to a garden in the environs
" of the city, where was a fountain ſo inviting, that
" two celeſtial nymphs had come down to bathe
" there. The *Rajah* became enamoured of one of
" them, who condeſcended to allow of his attachment
" to her; and ſhe and her ſiſter nymph uſed thence-
" forward to have frequent interviews with him in
" that garden. On one of thoſe occaſions, they
" brought with them a male inhabitant of the hea-
" venly regions, to whom they introduced the *Rajah*;
" and between him and *Malêcheren* a ſtrict friendſhip
" enſued; in conſequence of which, he agreed, at the
" *Rajah's* earneſt requeſt, to carry him in diſguiſe to
" ſee the court of the divine *Inder*, a favour never be-
" fore granted to any mortal. The *Rajah* returned
" from thence with new ideas of ſplendor and mag-
" nificence,

"nificence, which he immediately adopted in regu-
"lating his court, and his retinue, and in beautifying
"his ſeat of government. By this means *Mahâbalipoor*
"became ſoon celebrated beyond all the cities of the
"earth; and an account of its magnificence having
"been brought to the gods aſſembled at the court of
"*Inder*, their jealouſy was ſo much excited at it, that
"they ſent orders to the God of the Sea to let looſe
"his billows, and overflow a place which impiouſly
"pretended to vie in ſplendor with their celeſtial man-
"ſions. This command he obeyed; and the city was
"at once overflowed by that furious element, nor has
"it ever ſince been able to rear its head."

Such is the mode in which the *Bramins* chooſe to account for the ſignal overthrow of a place devoted to their wretched ſuperſtitions.

It is not, however, improbable, that the reſt of this hiſtory may contain, like the mythology of *Greece* and *Rome*, a great deal of real matter of fact, though envelloped in dark and figurative repreſentations. Through the diſguiſe of theſe we may diſcern ſome imperfect records of great events, and of revolutions that have happened in remote times; and they perhaps merit our attention the more, as it is not likely that any records of ancient *Hindoo* hiſtory exiſt but in this obſcure and fantaſtic dreſs. Their poets ſeem to have been their only hiſtorians, as well as divines; and whatever they relate, is wrapped up in this burleſque garb, ſet off, by way of ornament, with circumſtances hugely incredible and abſurd, and all this without any date, and in no other order or method, than ſuch as the poet's fancy ſuggeſted, and found moſt convenient. Nevertheleſs, by comparing names and grand events, recorded by them, with thoſe interſperſed in the hiſtories of other nations, and by calling in the aſſiſtance of ancient monuments, coins, and inſcriptions, as occaſion ſhall offer,

offer, ſome probable conjectures, at leaſt, if not important diſcoveries, may, it is hoped, be made on theſe intereſting ſubjects. It is much to be regretted, that a blind zeal, attended with a total want of curioſity, in the *Mahommedan* governors of this country, have been ſo hoſtile to the preſervation of *Hindoo* monuments and coins. But a ſpirit of enquiry among *Europeans* may yet perhaps be ſucceſsful; and an inſtance which relates to the place above deſcribed, though in itſelf a ſubject of regret, leaves room to hope that futurity may yet have in ſtore ſome uſeful diſcoveries. The *Kauzy* of *Madras*, who had often occaſion to go to a place in the neighbourhood of *Mahábalipoor*, aſſured the writer of this account, that within his remembrance, a ryot of thoſe parts had found, in plowing his ground, a pot of gold and ſilver coins, with characters on them which no one in thoſe parts, *Hindoo* or *Mohammedan*, was able to decypher. He added, however, that all ſearch for them would now be vain, for they had doubtleſss been long ago devoted to the crucible, as, in their original form, no one there thought them of any value.

The inſcription on the Pagoda mentioned above, is an object which, in this point of view, appears to merit great attention. That the conjecture, however, which places it among the languages of *Siam*, may not ſeem in itſelf chimerical, the following paſſages from ſome authors of repute are here inſerted, to ſhew, that the idea of a communication having formerly ſubſiſted between that country and the Coaſt of *Choromandel* is by no means without foundation; nay, that there is ſome affinity, even at this day, between the *Balic* and ſome of the *Hindoo* languages, and that the ſame mode of worſhip ſeems formerly to have prevailed in the *Deckan* which is now uſed by the *Siameſe*.

Monſieur

Monſieur de la Loubere, in his excellent account of *Siam*, ſpeaks thus of the origin of the *Balic* language.

" The Siameſe (ſays he) do not mention any coun-
" try where the Balic language, which is that of their
" laws and their religion, is at preſent in uſe. They
" ſuppoſe, indeed, on the report of ſome among them,
" who have been on the Coaſt of Choromandel, that it
" bears ſome reſemblance to ſome of the dialects of that
" country; but they at the ſame time allow, that the
" character in which it is written, is not known but
" among themſelves. The ſecular Miſſionaries ſettled
" at Siam, believe that this language is not entirely a
" dead one; becauſe they have ſeen in their hoſpital a
" man from the neighbourhood of Cape Comorin, who
" mixed ſeveral Balic words in his diſcourſe, declaring
" that they were in uſe in his country, and that he
" himſelf had never ſtudied nor knew any other than
" his mother tongue. They at the ſame time men-
" tion, as matter of certainty, that the religion of the
" Siameſe comes from thoſe parts; as they have read
" in a Balic book, that Sommonacodom, the idol of
" the Siameſe, was the ſon of a King of Ceylone."*

The

* " Les Siamois ne nomment aucun pais, ou la langue Bali qui
" est celle de leurs loix et de leur religion, soit aujourd-huit en
" usage. Ils soupconnent a la verite, sur le rapport de quelques-
" uns d'entre eux, qui ont ete a la Côte de Coromandel, que la
" langue Balic a quelque resemblance avec quelqu'un des dialects
" de ce pais la: mais ils conviennent en même temps que les let-
" tres de la langue Balic ne sont connues que chez eux. Les Mis-
" sionnaires séculiers a Siam croyent que cette langue n'est pas en-
" tierement morte; parce qu'ils ont vu dans leur hopital un homme
" des environs du Cap de Comorin, qui metoit plusieurs mots Balis
" dans son langage, assurant qu'ils etoient en usage en son pais,
" et que luy n'avoit jamais etudié, et ne savoit que sa langue ma-
" ternelle. Ils donnent d'ailleurs pour certain que la religion des
" Siamois vient de ces quartiers la, parce qu'ils ont lu dans un
" livre Balic que Sommonacodom que les Siamois adorent, etoit
" fils d'un Roi de l'isle de Ceylone."

The language of the man mentioned in this paſſage, who came from the neighbourhood of *Cape Comorin*, could be no other than the *Tamulic*; but the words here alluded to may very poſſibly have been derivatives from the *Shanſcrit*, common to both that and the *Balic*.

In another part of the ſame work, where the author treats of the hiſtory of *Sommonacodom* at large, on the authority of the *Balic* books, he ſays,

"The father of Sommonacodom, according to the "ſame Balic book, was a King of Teve Lanca; that "is to ſay, of the famous Ceylone."*

Here it is obſervable, that, while the country of *Siam* ſeems to be utterly unknown both to the natives of *Ceylone* and *Hindoſtan*, *Ceylone* ſhould nevertheleſs be ſo well known to the *Siameſe*, and under the ſame appellation it bears in the *Shanſcrit*. An epithet is alſo here prefixed to it, which ſeems to be the ſame as that uſed by the *Hindoos* in ſpeaking of that iſland; for they alſo call it, in *Shanſcrit*, *Dêve Lanca*, or *the Sacred Lanca*. From ſeveral paſſages in the ſame work, it alſo appears, that the *Shanſcrit* word *Mâha*, which ſignifies *great*, is conſtantly uſed in the *Balic* language in the ſame ſenſe. And the names of the days of the week are moſt of them the ſame in *Shanſcrit* and in *Balic*, as may be ſeen in the following compariſon of them.

Shanſcrit.	*Balic.*	
Aditta-vâr,	Van Athit.	Sunday.
		Soma-vâr,

* "Le pere de Sommonacodom etoit, ſelon ce meſme livre Bali, "un Roi de Teve Lanca, c'eſt-à-dire un Roi de la celebre Ceylan."

Shanſcrit.	*Balic.*	
Soma-vâr,	Van * Tchân,	Monday.
Mungela-vâr,	Van Angkaan,	Tueſday.
Bouta-vâr,	Van Pout,	Wedneſday.
Brahſpati-vâr,	Van Prahout,	Thurſday.
Soucra vâr,	Van Souc,	Friday.
Sany-vâr,	Van Sâoa,	Saturday.

The ſame author gives, in another place, an account of a pretended print of a foot on a rock, which is an object of worſhip to the *Siameſe*, and is called *Prabât*, or the venerable foot. For *prâ*, in *Balic*, he ſays, ſignifies *venerable*, which agrees with *prâper* and *prameshť* in *Shanscrit;* and *bât* in the ſame tongue is a foot, as *pâd* in *Shanscrit.* After which he goes on to ſay:

"We know that in the iſland of Ceylone there is a "pretended print of a human foot, which has long been "held in great veneration. It repreſents, doubtleſs, "the left foot; for the Siameſe ſay that Sommonaco-"dom ſet his right foot on their *Prabât*, and his left "foot at *Lanca*†."

From KNOX's Hiſtory of *Ceylone* it appears, that the impreſſion here ſpoken of, is upon the hill called, by the *Chingelays*, *Hamalell;* by *Europeans*, *Adam's Peak;* and that the natives believe it to be the foot-ſtep of their great

* Here one *Hindoo* word is substituted for another; for *Tchân* in *Hindostany*, and *Tchánder* in *Shanscrit*, signify the moon as well as *Somer*.

† "On sait que dans l'isle de Ceylan, il y a un pretendu vestige "de pié humain, que depuis long temps y est en grande vénération. "Il représente, sans doute, le pié gauche; car les Siamois disent "que Sommonacodom posa le pié droit à leur *prabat*, et le pié "gauche à Lancà."

great idol *Buddou*; between the worſhip of whom, as deſcribed by KNOX, and that of *Sommonacodom*, as related by M. DE LA LOUBERE, there is a ſtriking reſemblance in many particulars, which it may be proper here to enumerate.

1*ſt*. Beſides the footſteps above mentioned, there is a kind of tree (which, from deſcription, appears to be the *Pipel* tree, ſo well known in *India*) which the *Chingelays* hold ſacred to *Buddou*, and the *Siameſe* to *Sommonacodom*; inſomuch that the latter deem it meritorious to hang themſelves upon it. The *Chingelays* called it *Bogahah*; for *gahah*, in their language, ſignifies a tree; and *bo* ſeems to be an abbreviation of *Bod*, or *Buddou*; and the *Siameſe* call it, in *Balic*, *Pra ſi Mahà Pout*, which, according to DE LA LOUBERE'S interpretation, ſignifies the tree of the great *Pout**. This he ſuppoſes to mean *Mercury*; for he obſerves that *Pout*, or *Poot*, is the name of that planet in the *Balic* term for *Wedneſday*; and in another place, he ſays, *Pout* is one of the names of *Sommonacodom*. It is certain that *Wedneſday* is called the day of *Bod*, or *Budd*, in all the *Hindoo* languages, among which the *Tamulic*, having no *b*, begins the word with a *p*, which brings it very near the *Balic* mode of writing it. It is equally certain that the days of the week, in all theſe languages, are called after the planets in the ſame order as with us, and that *Bod*, *Budd*, or *Pood*, holds the place of *Mercury*. From all which it ſhould appear that *Pout*, which, among the *Siameſe*, is another name for *Sommonacodom*, is itſelf a corruption of *Buddou*, who is the *Mercury* of the *Greeks*. And it is ſingular that, according to M. DE LA LOUBERE, the mother of *Sommonacodom*, is called, in *Balic*, *Mahà-mania*, or the *great Mania*, which reſembles much the name of *Maia*, the mother

* In vulgar *Siamese* they call it *Ton-pó*.

mother of *Mercury*. At the ſame time that the *Tamulic* termination *en*, which renders the word *Pooden*, creates a reſemblance between this and the *Woden* of the *Gothic* nations, from which the ſame day of the week is denominated, and which, on that and other accounts, is allowed to be the *Mercury* of the *Greeks*.

2*dly*. The temples of *Sommonacodom* are called *Pihân*; and round them are habitations for the prieſts, reſembling a college; ſo thoſe of *Buddou* are called *Vihâr*, and the principal prieſts live in them as in a college. The word *Vihâr*, or, as the natives of *Bengal* would write it, *Bihâr*, is *Shanſcrit*; and *Ferishtah*, in his Hiſtory of *Bengal*, ſays, that this name was given by the *Hindoos* to the Province of *Behâr*, becauſe it was formerly ſo full of *Bramins*, as to be, as it were, one great *ſeminary of learning*, as the word imports.

3*dly*. The *Siameſe* have two orders of prieſts, and ſo have the worſhippers of *Buddou*. Both the one and the other are diſtinguiſhed by a yellow habit, and by another circumſtance which muſt be mentioned in the words of the reſpective authors. KNOX ſays of the *Buddou* prieſts, "They have the honour of carrying "the *Tallipot* with the broad end over their heads "foremoſt, which none but the King does." And M. DE LA LOUBERE ſays of the *Siameſe* prieſts, "To "defend themſelves from the ſun they have the *Tala*-"*pat*, which is their little umbrella, in the form of a "ſcreen*."

The

* "Pour se gárentir du soleil ils ont le Talapat, qui est leur "petit parasol en forme d'écran."

The word here uſed is common to moſt of the *Hindoo* languages, and ſignifies *the leaf of the Palmyra tree.* M. DE LA LOUBERE mentions it as a *Siameſe* word, without ſeeming to know its origin, or primary ſignification.

4thly. The prieſts of *Buddou*, as well as thoſe of *Sommonacodom*, are bound to celibacy as long as they continue in the profeſſion; but both the one and the other are allowed to lay it down and marry.

5thly. They both eat fleſh, but will not kill the animal.

6thly. The prieſts of either nation are of no particular tribe, but are choſen out of the body of the people.

Theſe circumſtances plainly ſhow that this is a ſyſtem of religion different from that of the *Véds;* and ſome of them are totally inconſiſtent with the principles and practice of the *Bramins.* And, indeed, it is manifeſt, from KNOX's whole account, that the religion of the *Chingelays* is quite diſtinct from that which prevails at this day among the *Hindoos*; nor does it appear that there is ſuch a race of men as that of the *Bramins* among them. The only part in which there ſeems to be any agreement, is in the worſhip of the *Debtahs*, which has probably crept in among them from their *Tamulian* neighbours; but that is carried on in a manner very different from the *Braminical* ſyſtem, and appears to be held by the nation at large in very great contempt, if not abhorrence. KNOX's account of it is this: "Their temples (i. e. thoſe of the *Debtahs)* are, he ſays, "called *Covels*," which is the *Tamulic* word for *Pagoda.* He then goes on to ſay, "A man piouſly "diſpoſed, builds a ſmall houſe at his own charge, which

" which is the *temple*, and *himſelf becomes prieſt thereof.* " This houſe is ſeldom called *God's Houſe*, but moſt " uſually *Jacco*, the *Devil's*." But of the prevailing religion, he ſpeaks in very different terms, and deſcribes it as carried on with much parade and ſplendor, and attended with marks of great antiquity. " The Pagodas " or temples of their Gods (ſays he) are ſo many that I " cannot number them. Many of them are of rare and " exquiſite work, built of hewn ſtone, engraven with " images and figures; but by whom, and when, I could " not attain to know, the inhabitants themſelves being " ignorant therein. But ſure I am, they were built by " far more ingenious artificers than the Chingelays that " now are on the land. For the Portugueſe, in their " invaſions, have defaced ſome of them, which there is " none found that hath ſkill enough to repair to this " day." In another place he ſays, " Here are ſome " ancient writings, engraven upon rocks, which puzzle " all that ſee them. There are divers great rocks in " divers parts in *Cande Uda*, and in the northern parts. " Theſe rocks are cut deep with great letters for the " ſpace of ſome yards, ſo deep that they may laſt to the " world's end. Nobody can read them, or make any " thing of them. I have aſked Malabars and Gentoos, " as well as Chingelays and Moors, but none of them " underſtood them. There is an ancient temple, God- " diladenni in Yattanour, ſtands by a place where there " are of theſe letters." From all which the antiquity of the nation and their religion is ſufficiently evident: and from other paſſages it is plain, that the worſhip of *Buddou*, in particular, has been from remote times a very eminent part of that religion: for the ſame author, ſpeaking of the tree at *Anurodgburro*, in the northern part of the iſland, which is ſacred to *Buddou*, ſays, " The due performance of this worſhip they reckon not " a little meritorious; inſomuch that, as they report, " ninety kings have reigned there ſucceſſively, where, " by the ruins that ſtill remain, it appears, they ſpared " not for pains and labour to build temples and high

" monuments to the honour of this God, as if they had " been born to hew rocks and great ſtones, and lay " them up in heaps. Theſe Kings are now happy " ſpirits, having merited it by theſe labours." And again he ſays, " For this God, above all other, they " ſeem to have a high reſpect and devotion," &c.

And from other authorities it will appear, that this worſhip has formerly been by no means confined to *Ceylone*, but has prevailed in ſeveral parts of *India* prior to that of the *Bramins:* nay, that this has been the caſe even ſo late as the ninth and twelfth centuries of the *Chriſtian* era.

In the well-known **Anciennes Relations*, tranſlated from the *Arabic*, by that eminent orientaliſt EUSEBIUS RENAUDOT, the *Arabian* traveller gives this account of the cuſtom of dancing-women, which continues to this day in the *Deckan*, but is not known among the *Hindoos* of *Bengal*, or *Hindoſtan* Proper.

" There are in India public women, called *women* " *of the idol*, and the origin of this cuſtom is this: " When a woman has made a vow for the purpoſe of " having children, if ſhe brings into the world a pretty " daughter, ſhe carries it to *Bod*, (ſo they call the idol " which they adore,) and leaves it with him†."

This

* Anciennes Relations des Indes et de la Chine, de deux Voyageurs Mohametans, qui y allerent dans le neuvieme Siecle.—*Paris*, 1718, 8vo.

† " Il ya dans les Indes des femmes publiques, appellés, femmes " de l'idole, l'origine de cette coustume est telle; Lors qu'une " femme a fait un voeu pour avoir des enfans, si elle met au monde " une belle fille, elle l'aporte au *Bod*, c'est ainsi qu'ils appellent " l'idole qu'ils adorent, aupres duquel elle la laisse, &c." Anc. Rel. p. 109.

This is a pretty juſt account of this cuſtom as it prevails at this day in the *Deckan;* for children are, indeed, devoted to this profeſſion by their parents; and when they grow up in it, they are called, in *Tamulic*, *Devadâſi*, or *female ſlaves of the idol.* But it is evident they have changed their maſter ſince this *Arabian* account was written, for there is no idol of the name of *Bod* now worſhipped there. And the circumſtance of this cuſtom being unknown in other parts of *India*, would lead one to ſuſpect that the *Bramins*, on introducing their ſyſtem of religion into that country, had thought fit to retain this part of the former worſhip, as being equally agreeable to themſelves and their new diſciples.

The ſame *Arabian* traveller gives us an account of a very powerful race of *Hindoo* Kings (according to them, indeed, the moſt powerful in *India*) who then reigned on the *Malabar* Coaſt with the title of *Balhâra.* Their dominion appears to have extended over *Guzerat*, and the greateſt part, if not the whole, of the ancient kingdom of *Viſiapoor.* For the *Arabian* geographer, quoted by M. RENAUDOT, makes *Nahelvârah* the metropolis of theſe Princes, which is, doubtleſs, *Nahelvalah*, the ancient capital of *Guzerat;* though M. RENAUDOT ſeems not to have known that place; and the reſt of the deſcription ſufficiently ſhows the great extent of their dominion ſouthward. M. D'ANVILLE ſpeaks of this race of Kings on the authority of the *Arabian* geographer EDRISI, who wrote in the twelfth century, according to whom it appears, that their religion was, even ſo late as that period, not the *Braminical*, but that of which we are now ſpeaking. M. D'ANVILLE's words are theſe: "Edriſi acquaints us with the reli-
"gion which this Prince profeſſed, in ſaying, that his
"worſhip was addreſſed to *Bodda*, who, according to
"St. Jerome, and Clemens Alexandrinus, was the
"founder of the ſect of the Gymnoſophiſts, in like
"manner

" manner as the Bramins were uſed to attribute their " inſtitution to Brahma*."

The authority of CLEMENS ALEXANDRINUS is alſo cited on the ſame ſubject by RELANDUS in his 11th Diſſertation, where, treating of the language of *Ceylone*, he explains the word *Vehâr*, above ſpoken of, in theſe terms :

" Vehâr ſignifies a temple of their principal God " Buddou, who, as Clemens Alexandrinus has long " ago obſerved, was worſhipped as a God by the " Hindoost."

After the above quotations, the following extract from the voyage of that inquiſitive and ingenious traveller M. GENTIL, publiſhed in 1779, is given as a further and very remarkable illuſtration of this ſubject.

" This ſyſtem is alſo that of the Bramins of our " time; it forms the baſis of that religion which they " have brought with them into the ſouthern parts of the " Peninſula of Hindoſtan, into Madura, Tanjore, and " Maiſſore.

" There was then in thoſe parts of India, and prin- " cipally on the Coaſt of Choromandel and Ceylone, a fort

* " L'Edrisi nous instruit sur la religion que professoit ce Prince, " en disant que son culte s'adressoit a Bodda, que selon St. JE- " ROME & St. CLEMENT D'ALEXANDRIE, avoit ete l'instituteur des " Gymnosophistes comme les Brachmanes rapportotient a Brahma " leur institut." Ant. Geog. de L'Inde, p. 94.

† " *Vehâr*, templum dei primarii Buddoe *Βουττα* quem Indos et " Deum venerari jam olim notavit Clemens Alexandrinus." Storm. lib. 1. p. 223. Rel. Diss. pars tertia, p. 85.

" ſort of worſhip, the precepts of which we are quite " unacquainted with. The God Baouth, of whom at " preſent they know no more in India than the name, " was the object of this worſhip; but it is now totally " aboliſhed; except that there may poſſibly yet be found " ſome families of Indians who have remained faithful " to Baouth, and do acknowledge the religion of " the Bramins, and who are on that account ſeparated " from, and deſpiſed by, the other caſts.

" I have not, indeed, heard that there are any ſuch " families in the neighbourhood of Pondicherry; but " there is a circumſtance well worthy of remark, " which none of the travellers that have treated of the " Coaſt of Choromandel and Pondicherry ſeem to have " noticed. It is this, that at a ſhort league's diſtance " to the ſouth of this town, in the plain of Virapatnam, " and pretty near the river, we find a ſtatue of granite " very hard and beautiful. This ſtatue, which is from " three feet to three and a half in height, is ſunk in the " ſand to the waiſt, and weighs doubtleſs many thouſand " weight: it is, as it were, abandoned in the midſt of " this extenſive plain. I cannot give a better idea of " it, than by ſaying, that it exactly agrees with and re- " ſembles the Sommonacodom of the Siameſe; its head " is of the ſame form, it has the ſame features, its arms " are in the ſame attitude, and its ears are exactly ſimilar. " The form of this divinity, which has certainly been " made in the country, and which in no reſpect reſembles " the preſent idols of the Gentoos, ſtruck me as I paſſed " this plain. I made various inquiries concerning this " ſingular figure, and the Tamulians, one and all, aſ- " ſured me that this was the God Baouth, who was now " no longer regarded, for that his worſhip and his feſti- " vals had been aboliſhed ever ſince the Bramins had " made themſelves maſters of the people's faith."*

* " Ce ſysteme eſt auſſi celui des Brames de nos jours; il fait " la Base de la religion qu'ils ont apportee dans le sud la pres- " qu'isle de l'Indostan, la Madure, le Tanjaour, et le Maissour.

" Il

M. Gentil then goes on to ſay a good deal more upon this ſubject, in the courſe of which he ſuppoſes, that this Deity is the *Fo* of the *Chineſe*, whoſe worſhip, by their own accounts, was brought from *India*. And, indeed, the abridgement of the name *Pout*, mentioned in a note of this paper, which the vulgar *Siameſe* reduce to the ſingle ſyllable *Po*, ſeems to countenance this opinion. But as this is foreign to our preſent purpoſe, and the above paſſages, it is hoped, are ſufficient to eſtabliſh what was propoſed, it ſeems high time to take leave of this ſubject, with an apology for that prolixity which is inſeparable from this kind of diſcuſſion.

17*th June*, 1784.

VI.

" Il y avoit alors dans ces parties de l'Inde, et principalement a " la Côte de Coromandel & a Ceylan, un culte dont on ignore ab- " ſolument les dogmes; le Dieu Baouth, dont on ne connoit au- " jourd'hui, dans l'Inde, que le nom, etoit l'objet de ce culte; " mais il eſt tout-a-fait aboli, ſi ce n'eſt qu'il ſe trouve encore quel- " ques familles d'Indiens ſéparées & méprisées des autres Caſtes, " qui ſont reſtées fideles à Baouth, & qui ne reconnoiſſent point " la religion des Brames.

" Je n'ai pas entendu dire qu'il y ait de ces familles aux envi- " rons de Pondichery; cependant, une choſe tres digne de remar- " que, & à laquelle aucun des voyageurs qui parlent de la Côte " de Coromandel & de Pondicherry, n'ont fait attention, eſt que " l'on trouve a une petite lieue au ſud de cette ville, dans la plaine " de Virapatnam, aſſez pres de la riviere, une ſtatue de *Granit* " tres-dur & tres-beau: cette ſtatue, d'environ trois pieds & demi " de hauteur, eſt enfoncée dans le ſable juſqu'a la ceinture, & peſe " ſans doute pluſieurs milliers; elle eſt comme abandonnée au " milieu de cette vaſt plaine: je ne peux mieux en donner une " idée, qu'en diſant qu'elle eſt exactement conforme & reſſem- " blante a *Sommonacodom* des Siamois; c'eſt la même forme de " tête, ce ſont les mêmes traits dans le viſage, c'eſt la même atti- " tude dans les bras, & les oreilles ſont abſolument ſemblables. La " forme de cette divinite, qui certainement a été faite dans le pays, " & qui ne reſſemble en rein aux divinités actuelles des Gentils, " m'avoit frappé lorſque je paſſai dans cette plaine; je fis diverſes " informations ſur cette figure ſinguliere, les Tamoults m'aſſure- " rent tous que c'etoit Baouth qu'on ne regardoit plus; que ſon " culte & ſes fêtes etoient ceſſées depuis que les Brames s'étoient " rendus les maîtres de la croyance du peuple."

VI.

HINTS

RELATIVE TO

FRICTION IN MECHANICS.

By Mr. REUBEN BURROW.

HYPOTHESIS.

IN the following eſtimation of friction, the weight or force neceſſary to overcome the reſiſtance, &c. is ſuppoſed to be proportional to the preſſure.

Of FRICTION in the INCLINED PLANE.

Let AB be an inclined plane,* and let PR repreſent a weight ſuſtained on it by any force Rm, acting in the direction Rm: and draw PD perpendicular to AB, and let Rm meet PD in n: Now as Rn repreſents the force that would be neceſſary to ſuſtain the body, excluſive of friction, and Pn repreſents the preſſure againſt the plane, if mt be drawn perpendicular to PD meeting it in t, then will nm be the force neceſſary to overcome the friction in that direction, and Pt the real preſſure againſt the plane AB, when the whole force Rm, neceſſary to overcome both the weight and the friction, acts in the direction Rm; and as the force nm is equivalent to nt and tm, and nt has no other effect than to alter the preſſure, therefore tm is the only force which overcomes the reſiſtance of friction; and as this force is as the preſſure, therefore tm is proportional to Pt, and hence the locus of all the points m is a right line.

Fig. 1.

Again, ſuppoſe the body, inſtead of being drawn along, to be ſuſtained at reſt only upon the plane; this, it is evident, will require a leſs force than the other, becauſe the friction prevents the body in part from deſcending.* Let Rm be the force required, and let the ſame conſtruction be made as before; then becauſe Rn is the force that would be neceſſary if there was no friction, mn is the effect of the friction itſelf; but mn is equivalent to the forces mt and tn; and as Pn would be the preſſure excluſive of friction, Pt is the preſſure inclusive; and as the force loſt is as the friction, and mt is as the force loſt, therefore mt is as Pt, for the friction is as the preſſure; conſequently the locus of all the points m is a right line paſſing through P, and making the ſame angle as DPQ in the former caſe, and only differing by being drawn on the contrary ſide of PD.

SCHOLIUM.

In what follows, the force requiſite to ſuſtain any body is conſidered under three different diſtinctions. Firſt, when it is juſt barely ſufficient to overcome the weight and reſiſtance ariſing from friction, and the body is conſidered as juſt beginning to move in the direction of the force applied, and the force in this caſe is called the *moving force*: ſecondly, when this force is diminiſhed till the body would begin to move or deſcend in a contrary direction if the force was diminiſhed farther; this laſt I call the *ſuſpending force*: and it is plain that whatever force is applied to the body leſs than the moving, and greater than the ſuſpending force, the body will remain at reſt: laſtly, it is manifeſt that there is an intermediate ſtate, in which ſuch a degree of force may be applied, that the friction will have no effect either way; and this force is the ſame as would keep the body in equilibrio if there was no friction, becauſe the effect or tendency of

* Fig. 2.

of friction is to keep the body at reſt, or prevent it from moving either way: this being premiſed, there will be little difficulty in the following.

PROBLEM I.

Having given the weight of the body to be ſuſtained, the inclination of the plane, and the ratio of the friction to the preſſure; to find the force requiſite to ſuſtain the weight in a given direction.

In the foregoing figures, draw PR and PD at right angles to the horizon and plane reſpectively, PR repreſenting the weight; take PD to DQ as the preſſure to the friction, and let DQ be taken upwards or downwards as the requiſite force is motive or ſuſpenſive; join PQ, and draw the line Rm in the given direction meeting PQ in m; then Rm is the force required.

Corollary 1. If the friction be the n part of the preſſure, and W be the weight, s and c the ſine and coſine of the plane's elevation, then the moving force parallel to the plane will be W $(s+c : n,)$ and the ſuſpending force W $(s-c : n.)$

Corollary 2. If the direction of the force be parallel to the horizon, and t be the tangent of the plane's elevation, then W $(tn+1) : (n-t)$ will be the moving force, and W $(tn-1) : (n+t)$ the ſuſpending force, and Wt the force excluding friction.

Example. If the weight be a ton, the friction $\frac{1}{3}$ of the preſſure, AB=5, BC=3, and AC=4, then the moving force will be 3235 pounds, the ſuſpending force

force 747 pounds, and the force excluding friction 1680 pounds; nearly.

PROBLEM II.

Given the weight of the body, the inclination of the plane, and the ratio of the friction to the preſſure; to find the direction ſo that the ſuſtaining force may be a given quantity, or the leaſt poſſible.

Draw DQ and QP as before, and let PR be to Rm as the weight to the given force; then from the center R, with a diſtance equal to Rm, interſect PQ in m; then Rm is the required direction when the force is given; but to have it the leaſt poſſible, draw Rm at right angles to PQ, then Rm is the direction required.

Corollary 1. An expreſſion for the ſuſtaining force when the leaſt poſſible, may be found as follows: In the triangles PDQ, RQm, the angle Q is common, therefore PQ: PD:: RQ: Rm; but PD is a forth proportional to AB, AC, and PR, and DQ is to PD as 1 to n, ſuppoſing this the given ratio; alſo RD is a fourth proportional to AB, BC, and PR; conſequently RQ is equal to DQ either added to or ſubtracted from DR, as it is the firſt or ſecond caſe; and becauſe PQ: PD::$\sqrt{(nn+1)}$; n:: RQ: Rm, therefore Rm$=$PR (n. BC $=$AC): AB$\sqrt{(nn+1)}$ or ($n=c$) W: $(\sqrt{nn+1})$ by ſubſtituting s and c for the natural ſine and coſine of the plane's elevation, and uſing the negative or affirmative ſign as the force required, is the moving or ſuſpending one reſpectively.

Example.

Example. If AB=5, BC=3, and AC=4, and the weight 1 ton, then the leaſt moving and ſuſtaining forces will be 1825 and 702 pounds reſpectively.

Corollary 2. Becauſe the triangles PDQ and RQm are ſimilar, and the ratio of PD to DQ conſtant to each fixed value of n, therefore the angle QRm being equal to DPQ, will alſo be conſtant, whether the inclination of the plane be variable or not; and hence the angles of the direction with the plane for the draught to be made with the greateſt advantage, are found for different values of n as follows:

n	QRm	n	QRm	n	QRm	n	QRm	n	QRm	n	QRm
	° ′		° ′		° ′		° ′		° ′		° ′
1	45.0	2	26.34	3	18.26	4	14. 2	5	11.19	6	9.28
1¼	38.40	2¼	23.58	3¼	16.54	4¼	13.15	5¼	10.47	7	8. 8
1½	33 41	2½	21.48	3½	15.57	4½	12.32	5½	10.18	8	7. 8
1¾	29.45	2¾	19.59	3¾	14.56	4¾	11.53	5¾	9.52	9	6.20

N. B. The direction, or angle QRm, is to be taken below the plane for the ſuſpending, and above the plane for the moving force.

Scholium. Though at firſt ſight the former part of the above Problem, which ſhews the beſt method of applying an active force, ſeems ſuperior to the other, yet, on farther conſideration, the other appears of equal conſequence, and particularly in building and faſtening walls, banks of earth, fortifications, &c. and the application of what are called *land-ties*, &c. Thus if a weight, for inſtance, is to be drawn along the plane RB, and the friction be $\frac{1}{3}$ of the preſſure, the beſt direction is when Rm makes an angle of 18°. 26′ *above* the plane; but if the weight is a quantity of earth or ſtone, or any thing

to

to be ſuſpended, as in the caſe of land-ties, the beſt angle (on the foregoing ſuppoſition) muſt be 18°.26′ *below* the plane.

SCHOLIUM.

In thoſe propoſitions the friction is eſtimated according to the moſt generally received opinion, that the reſiſtance is proportional to the whole preſſure compounded of the weight of the body, and the additional force neceſſary to overcome the friction; but it has been aſſerted, that there may be caſes where the friction is not proportional to the whole preſſure, but to that which would ariſe if the body was ſuſtained in a given direction, excluſive of friction; and that there might alſo be caſes, where the reſiſtance, ariſing from tenacity or coheſion, might be as the relative preſſure againſt the plane, and the force to overcome it the ſame in every direction; ſomething ſimilar to a globe ſtuck faſt in wet tenacious clay: I ſhall therefore give ſolutions to both caſes.

In the firſt caſe,* the force requiſite to ſuſtain the body in direction RV, excluſive of friction, is Rn; and as Rn is equivalent to RD and Dn, therefore Pn is the preſſure, excluſive of friction; and as the friction is the *n* part of the preſſure, the force acting parallel to AB to overcome it, is the *n* part of Pn; but the force which acting in direction Rn will be equivalent to the n part of Pn in the direction Rn, is a fourth proportional to n times RD, Pn, and Rn; but becauſe DQ is the n part of DP, therefore fn is the n part of Pn, and the fourth proportional aforeſaid will be nz; conſequently the ſum or difference of Rn and nz muſt be a given quantity, or the leaſt poſſible: the Problem therefore is reduced † to drawing a line Rn from the given point R, meeting the two lines PD and PQ given in poſition

* Fig. 3. Fig. 4.

tion in n and z; ſo that nz added to or taken from Rn, the ſum or difference may be a given quantity, or the leaſt poſſible. To do this, let DS be taken equal to DR, and draw SR parallel to PD meeting PQ in M; then becauſe Rn is equal to rn, the ſum or difference of the quantities aforeſaid is rz; and when rz is required to be a given quantity, the queſtion is reduced to that particular caſe of the inclinations of APOLLONIUS, in ſolids, which has been reſolved by NEWTON and BARROW: the limits of the Problem, or the mode of drawing the line Rr, ſo that the intercepted part rz may be the leaſt poſſible, may be inveſtigated as follows:

* Suppoſe it done, and Rrz the poſition required, and let Rnm be indefinitely near to Rz, and Mh perpendicular to Rz, then by applying the analyſis of the ancients to the *Newtonian* doctrine of prime and ultimate ratios, mn is equal to zr; and if from the center R, with the diſtances Rz and Rn, the arcs zv and nt be ſuppoſed to be deſcribed, vn is equal to zt, and conſequently tr equal to mv; but rt: tn:: rh: Mh, and tn: zv:: Rr: Rz, and zv: vm:: Mh: hz, whence by compounding the proportions, tr: vm:: Rr: rh: Rz: zh, and as the two firſt terms are equal, the two laſt are equal, and conſequently Rr: Rz:: zh: rh, and dividing Rr: rz:: zh: rz, therefore Rr is equal to zh, and conſequently the point h is in an hyperbola, whoſe aſymptotes are QM and SM produced: but becauſe the angle MhR is a right angle, the point h is alſo in the circumference of a circle; therefore a line drawn from R to h, the point where the hyperbola and circle interſect, is the poſition required.

In the other caſe, where the reſiſtance ariſing from tenacity or coheſion is ſuppoſed to be as the relative preſſure againſt the plane, and the force to overcome it the

* Fig. 6.

the ſame in each direction, we have Rn for the ſuſtaining force, excluſive of friction, and the n part of Pn for the friction; and conſequently the ſum or difference of theſe is the expreſſion for the whole force; and the Problem may be thus conſtructed. Take PD to DQ as the preſſure to the friction, and join PQ; on PD deſcribe a circle, in which take Dv equal to DQ; join Pv, and draw RV perpendicular to it; then RV will repreſent the direction and meaſure of the whole force when it is the leaſt poſſible.

For DQ and Dv are equal, and conſequently nf is equal to Vn; but DQ is the n part of DP, therefore nf or Vn is the n part of Pn; and conſequently RV is equal to the ſum or difference of Rn, and the n part of Pn; but RV is the leaſt poſſible by conſtruction, and therefore the other is a minimum alſo. For draw any other line Rk meeting RV in k and PD in m; and draw mq, mt, parallel to DQ and Dv; then the ſum or difference of Rm and mt is equal to the ſum or difference of Rm, and mq; but the ſum or difference of Rm and mt is greater than RV, and therefore the ſum or difference of Rn and the n part of Pn is the leaſt poſſible.

PROBLEM III.

Given the weight of the body, the inclination of the plane, and the force ſuſtaining the body in a given direction: to find the ratio of the friction to the preſſure.

Take PR as before, (ſee Fig. 1. 2.) draw Rm in the given direction, and take PR to Rm as the weight of the body to the force ſuſtaining it; draw Pm meeting AB in Q, and PD perpendicular to AB; then PD is to DQ as the preſſure to the friction.

PROBLEM

PROBLEM IV.

If AhqN be the ſegment of an equilateral triangle, which, by moving parallel to itſelf and the horizon, generates a ſolid, upon which a figure hmGEHKpqh moves, touching the former in hm and qp; required the effect of the friction; ſtill ſuppoſing it the n part of the preſſure.

Let P be the center of gravity of half the body*, and PR its weight as before; then the body by means of its inflexibility is kept together in the ſame manner as if it was actuated by a force parallel to the horizon; but if PDn be perpendicular to Ah, and Rn parallel to the horizontal line AC, meeting PD in n, Pn will be the preſſure againſt the ſide Ah, and the friction is the n part of Pn; but PR : Pn : : AC : AB; therefore if AC repreſent the weight of half the body, the n part of AB will expreſs the weight requiſite to overcome the friction for that half; and by doubling the expreſſions, they ſerve for the whole. Wherefore let W repreſent the weight of the body, f the ſecant of the angle BAC; then *Wf* will be the preſſure againſt the plane AD; and the n part of Wf the force neceſſary to overcome the friction; and as this laſt is the force neceſſary to draw the body along a horizontal plane, therefore the force neceſſary to draw the body along a horizontal plane, is to that neceſſary to draw it along the body whoſe ſection is AhqN, as AC to AB, or as 1 to *f*.

Becauſe when the angle CAB is given, the ratio of PR to Pn is conſtant; therefore when the ſolid whoſe ſection is AhqN is elevated, making an angle with the horizon, ſo that its baſe forms an inclined plane; PR in that caſe repreſents the preſſure in a normal direction to that plane, and Pn the preſſure againſt the ſolid; and

* Fig. 7.

as the friction is increaſed in the ratio of the preſſure, therefore if the preſſure which the body would have on the inclined plane be increaſed in the ratio of AC to AB, or radius to the ſecant of the angle CAB, then the preſſure on the angular plane or body, whoſe perpendicular ſection is AhqN, will be had, and conſequently its n part, or the friction. Hence this conſtruction*; let PR repreſent the weight; then PD at right angles to AB repreſents the preſſure that the body would exert againſt the common inclined plane; take DK to DP as AB in the foregoing figure to AC, or as the ſecant of the inclination of the angular plane with its baſe to radius; let Dq be the n part of DK, and join Kq; then RM drawn any how to meet Kq in M, gives RM for the meaſure of the whole force in that direction; and it is the moving or ſuſpending force, according as Dq is taken upwards or downwards in the line AB.

It is evident that Kq is parallel to PQ, and therefore though the leaſt force (which is perpendicular to Kq) differ from that in the former caſes; yet the directions for having the greateſt effect are ſtill the ſame as in the foregoing table; the demonſtration is in effect the ſame as the firſt.

Corollary. By ſuppoſing s to be the ſecant of the angle † that the ſides of the angular plane make with the baſe, proceeding as Corollary 2d of Problem 1ſt, and putting t for the natural tangent of the plane's inclination, and W for PR the weight, we have $W\ (tn+f) : (n-t)$ for the moving; and $W\ (tn-f) : (n+t)$ for the ſuſpending force, neceſſary to draw the body along the angular inclined plane by a force acting parallel to the baſe of the plane.

Example.

* Fig. 5.

Example. Let AB, BC, and AC, be 5, 3, and 4, reſpectively, and let the inclination of the ſides be 45°; the weight of a ton and the friction one third of the preſſure; then 3648 pounds is the moving, and 499 the ſuſpending force.

SCHOLIUM.

In this propoſition, thoſe parts of the plane on which the body moves are ſuppoſed rectilineal, as moſtly happens in practice; but the friction is eaſily eſtimated in curvilinear ſurfaces, and may be found generally as follows:

Let AMP * be half the ſection perpendicular to the horizon, and to the axis of the ſolid which forms the curvilineal plane on which the body is moved; AP the axis; PM the ordinate, and MS a tangent to the curve at the point M; alſo let RM repreſent the weight or preſſure in a direction perpendicular to the horizon at the point M; and let RF be perpendicular to MS meeting MP in F; alſo let PN be taken equal to MR, and PQ equal to RF; and ſuppoſe the ſame conſtruction to be made for every point of the curve, and let HN be the locus of all the points N, and GQ the locus of all the points Q; then will the friction, when drawn along the horizontal plane, be to the friction of the ſame body when drawn along the curvilinear plane in the ſame direction, as the area APNH to the area APQG.

For the friction on the horizontal plane being as the ſum of the preſſures, is as the ſum of all the elementary lines MR or PN; that is, as the area AHNP; and the friction on the curvilinear plane is for the ſame reaſon as

* Fig. 9.

the ſum of all the RF or PQ, namely, as the area APQG; hence the truth of the propoſition is manifeſt.

Corollary 1. Becauſe Mn or the fluxion of y is to Mm the fluxion of the curve, as MR or PN to RF or PQ, therefore if PN be a function of AP, PQ will be a fourth proportional to the fluxion of the ordinate, the fluxion of the curve AM, and this function; wherefore if the curves HN and AM be given, the nature of the curve GQ will be known, and its area may be found by the common methods of quadratures.

Corollary 2. It is evident that when the planes are inclined to the horizon, the frictions of the right and curvilinear planes are ſtill in the ſame ratio as in the preceding caſes, and conſequently may be found by the ſame mode of proceeding.

Corollary 3. It is alſo evident, that the above method holds good whether the parts of the body are connected together or not, with reſpect to their motion in the direction RM, ſo long as each elementary part MR may be conſidered as ſuſtained at the point M by a force parallel to MP; but when the body is rigid or inflexible, the caſe becomes more ſimple, for MR is then conſtant, and APNH becomes a parallelogram.

Corollary 4. By ſuppoſing given properties to exiſt in any two of the curves AM, HN, or GQ, the nature of the third will be known; and hence a number of problems relative to friction may be propoſed and reſolved by a proper application of the direct and inverſe methods of fluxions.

PROPOSITION

PROPOSITION 5. THEOREM.

In the application of forces to overcome friction, the ſame allowances muſt be made for the forces acting to advantage or diſadvantage, by means of levers or other mechanical powers, as are made in the common doctrine; for inſtance, if a weight of two pounds, by acting at the diſtance of one foot from the fulcrum of a lever, be ſufficient to overcome the friction, then one pound at two feet diſtance will have the ſame effect, &c.

This is too evident to need a demonſtration.

OF FRICTION IN THE SCREW.

As any force acting perpendicular to the direction of a moving body does not affect the motion of the body in that direction, ſo the force acting perpendicular to the axis of the ſcrew, has no effect on the motion of a body raiſed thereby, excluſive of friction; it therefore requires the ſame force to raiſe a body by means of a ſcrew, as to raiſe the ſame body in equal time along an inclined plane of the ſame elevation, as the threads of the ſcrew by means of a force acting parallel to the baſe of the inclined plane: now, if we ſuppoſe the weight ſo contracted or condenſed as to be capable of being placed on one of the threads of the ſcrew, and faſtened to an imaginary lever always perpendicular to its axis, then it is evident this lever will have no effect but to change the direction of the weight, and keep it in the midſt of the thread of the ſcrew; and if a force be applied at the weight always perpendicular to this lever, ſo as to ſuſtain or draw it along, this force will be determined exactly the ſame as was done before in the inclined plane: but the rigidity of the parts of the "female

ſcrew" ſerves exactly the ſame purpoſe as this imaginary lever, and makes the weight act upon the threads like a body ſuſtained on an inclined plane by a force parallel to its baſe; and as the force to overcome both the weight and the friction is reciprocally as the diſtance from the center of the axis, therefore the diſtance of the power from the center of the axis, is to the diſtance from the ſame center to the middle of the threads of the ſcrew, as the force neceſſary to ſuſtain the body on the inclined plane, to the ſame force in the ſcrew at the diſtance of the power. The ſame proportion holds good whether the threads be cut perpendicular to the axis or in an angle; for in the firſt, the common plane is to be taken; and in the ſecond, the inclined or angular one, conſidered in the fourth Propoſition: Wherefore if *d* be the diſtance from the center of the axis to the middle of the threads of the ſcrew, D the diſtance of ſame center to the point where the force is applied, the force to overcome the weight and friction is W*d* $(tn \pm f) : (n \mp t)$ D, where the letters expreſs the ſame things as before, and the upper ſign is for the moving, and the lower for the ſuſpending force. N. B. *t* is the natural tangent of the angle made by a line touching one of the threads, and a plane at right angles to the axis of the ſcrew; or it is equal to the diſtance of the reſpective edges of two threads, divided by the circumference of the cylinder, out of which the ſcrew is cut.

Corollary 1. When lines drawn from the center of the axis of the ſcrew to coincide with the threads, are at right angles to the axis, the above expreſſion becomes $Wd\ (tn \pm 1) : (n \mp t)$ D, for *f* becomes radius or unity.

Corollary 2. When *n* is equal to *t*, the moving force will be infinite; alſo the ſuſpending force will be no-

thing when t is the n part of s; and when $Wd\ (tn-s)$: $(n+t)\ D$ becomes negative, it expreſſes the quantity of force which muſt act in a contrary direction to reduce the body juſt to a ſtate of ſuſpenſion.

SCHOLIUM.

It would be needleſs to make any allowance for the curvilinear ſurfaces of the threads of ſcrews, as they ſeldom differ much from the two foregoing forms; neither is it of much conſequence to allow for their parts being at different diſtances from the axis, as their breadth ſeldom bears any conſiderable ratio to the length of the levers by which they act; but the caſe is different when large bodies revolve on each other, and therefore it will be neceſſary to ſhew the mode of proceeding in ſuch caſes.

Let MmAQ be a convex ſolid,* generated by the revolution of the curve MAQ about its axis perpendicular to the horizon, and MRSQ a concave body exactly fitting it: then if this laſt body be revolved about the axis AP by means of the lever Pf, the force neceſſary to overcome the friction of one body turning upon the other may be found as follows. Suppoſe the revolving body divided into an infinite number of concentric tubes, that may deſcend independent of each other, and preſs freely againſt the body on which they revolve, and yet be ſo connected that the lever Pf may give the ſame angular velocity at the ſame time to each; alſo let the ordinates PN of the curve HN repreſent the weight or preſſure (in a direction perpendicular to the horizon) of each of the indefinitely ſmall parts Mk, or elementary lines of the body at the diſtance PM from

* Fig. 10.

the axis, and let c be the circumference of a circle whoſe radius is unity: then becauſe the friction of each of the elementary tubes MRSQ is as its preſſure, and the preſſure is as the number of lines Mk, and the preſſure of each; therefore as this number is as PM.Mn.c, we have the n part of this expreſſion for the force which, acting at M, would overcome the friction of the cylindrical tube if moved round upon a horizontal plane: but as the preſſure of each elementary part is increaſed in the ratio of Mn to Mm, when moved on the ſolid MAQ, the real force will be (PM.c.Mm.PN): n; alſo Pf: PM :: (PM.c.Mm.PN): n to the ſmall elementary force which will overcome the laſt force when acting at f; conſequently the whole force will be equal to the fluent of (PM^2.PN.Mm.c): (n.Pf.)

Corollary. By means of the curves AM, HN, &c. concluſions may be drawn ſimilar to thoſe in the Corollaries to the Scholium of the fourth Propoſition.

OF FRICTION IN THE LEVER.

It has been already obſerved, that a force acting perpendicular to the direction of a body in motion, does not alter the body's motion in that direction; therefore if * we ſuppoſe DB to be an upright cylinder, and AB a body touching it in a line as in the figure, and retained cloſe to it by an imaginary force, drawing it perpendicular towards the axis; then if a force CP be applied to C, the center of gravity of AB, and be always ſuppoſed to act perpendicularly to the radius CN, drawn from the center of the axis to the point C, the friction will be the ſame in drawing the body round the cylinder, as in drawing it along a horizontal plane with an equal preſſure; and if it be moved round by a force acting at a greater diſtance, the force will be reciprocally as the diſtance:

diſtance: on the contrary, if the body AB be fixed, and the cylinder turned round about its axis, the friction will be the ſame as if the cylinder was fixed, and the body drawn round it by CP, as before: Likewiſe the friction is the ſame, whether the cylinder be fixed, and the body AB moved round the axis MR by a force Qc applied at c; or whether the point c be fixed with AB faſtened to Cc, and the cylinder be revolved in a circle whoſe center is c, ſo as always to retain its paralleliſm with reſpect to any fixt object; and as this laſt caſe obtains in the axletrees of carriages, ſince every point of the wheel's contact with the ground may be conſidered as the center of motion for that inſtant, therefore the effect of the reſiſtance ariſing from the friction of the concave part of the nave upon the axletree, is to the effect that would ariſe from drawing the ſame weight over a horizontal plane of the ſame kind, as the parts that rub each other, as the radius of the axis to the radius of the wheel. It muſt be obſerved, that this is not the only friction to which carriages are ſubject; for there is another part, ariſing from the coheſion of the wheel and the ground at their contact, which is to be found and allowed for by the three firſt Propoſitions.

In the above the preſſure and friction have been ſuppoſed to be as the weight, as it is on a horizontal plane; but by the Scholium to the fourth Propoſition, it is plain that the preſſure is greater than the weight, and may be ſo in any proportion: however, as it appears by calculation, that the preſſure on an arc of ninety degrees is to that on its chord, only as 1,183 to 1, when both the concave and convex parts have exactly the ſame curvature, the difference will be ſo trifling when the cylinders have different curvatures as uſual, as to require very ſeldom to be allowed for.

This being premiſed, let M * be a weight placed at the point A of a lever, moveable about an axis whoſe center is d, and radius dn; and let N be the ſuſtaining force acting at B: now it is evident that the preſſure on the axis d differs ſo little from the weight, that it may be ſafely taken for it without any conſiderable error, except in ſome remarkable caſes, which may be allowed for from what has been ſaid already; and therefore the friction which ought in ſtrictneſs to be taken as the n part of the preſſure, will here be taken as the n part of the weight upon the axis. Now if N be taken for the force which, acting at B, would be juſt ſufficient to keep the weight M at A in equilibrio, excluſive of friction, and if W be the additional force to be added to N ſo as to overcome the friction, then will M+P, M—P, and P—M, be the weight upon the axis at d in the firſt, ſecond, and third figures reſpectively, (ſuppoſing the ſum of M and N to be equal to P.) Now as the friction is the n part of each of theſe quantities, and its effect is to keep the lever in a ſtate of reſt, therefore in whatever direction the force at N endeavours to draw the lever by acting at B, the friction tends to counteract that force by keeping the lever ſteady, or acting in a contrary direction at n; and as the effect of the friction, and the additional force W, are in equilibrio, and the friction acts by means of the lever dn, and the force W by the lever dB; therefore Bd is to dn as the ſum or difference of the n part of $N+W$ and M is to W; conſequently $W=dn\ (M+N)$: $(n.\ Bd—dn,)$ in the firſt figure; $W=dn\ (M—N)$: $(n.\ Bd+dn,)$ in the ſecond figure; and in the third figure, $W=dn\ (N—M)$: $(n.Bd—dn.)$ All theſe are the expreſſions for the moving forces.

To find the ſuſpending forces, or the forces which, acting at N, ſhall be juſt ſufficient to prevent the weight M from deſcending: Let M and N be the ſame as before, and let w be the force which, taken from N, will leave a force

* Fig. 12. 13. 14.

a force juſt ſufficient to prevent M from deſcending; then the weight upon d in the firſt figure will be $M+N-w$; in the ſecond figure, the weight will be $M-N+w$; and in the third figure, $N-M-w$; and by proceeding as before, the values of w in the ſuſpending forces are $dn\,(M+N) : (n.Bd+dn) : dn\,(M-N) : (n.Bd-dn)$, and $dn\,(N-M) : (n.Bd+dn,)$ in the firſt, ſecond and third figures reſpectively.

Becauſe Bd : dA :: M : N, therefore if this value of N be ſubſtituted in each of the above expreſſions for the friction, the whole force capable of ſuſtaining the friction and weight M will be had. Thus, for example, the moving force to overcome the friction and weight M in the firſt figure, will be $M\,(n.dA+dn) : (n.Bd-dn,)$ and the ſuſpending force $M\,(n.dA-dn) : (n.Bd+dn;)$ in the ſecond figure the moving force will be $M\,(n.dA+dn) : (n.Bd+dn,)$ and the ſuſpending force $M\,(n.dA-dn) : (n.Bd-dn;)$ and in the third figure, the moving force will be $M\,(n.dA-dn) : (n.Bd-dn,)$ and the ſuſpending force will be $M\,(n.dA+dn) : (n.Bd+dn.)$

The method of finding n from each of the above equations is evident, and conſequently the ratio of the friction to the preſſure by experiments.

OF FRICTION IN THE WEDGE.

Let AC* be the force neceſſary to ſuſtain the wedge QPB in the direction aB perpendicular to QP, friction included; and let AB be the force excluſive of friction: draw AN and AH perpendicular to the BQ and BP; CG parallel to AN, and CF parallel to AH: Now GA and AF, the forces of the wood againſt the ſides of the wedge,

Fig. 15.

wedge, in thoſe directions, compound a force equivalent to the diagonal CA in the direction CA, and therefore a force repreſented by AC in that direction, muſt be applied to the head of the wedge at *a* to overcome theſe forces. Let gr be the n part of Ag, and let the lines Ar be drawn, and alſo GK and FZ perpendicular to AG and AF, meeting the lines Ar in K and Z; then will GK and FZ repreſent the friction againſt the ſides BP and BQ, being each the n part of AG and AF, the preſſure againſt each ſide reſpectively; wherefore if Be be taken in PB, and Bn in BQ, equal to GK and FZ reſpectively, the forces Be and Bn in thoſe directions, muſt compound a force to which the force BC in the direction BC muſt be equivalent; and conſequently if Bm be the force compounded of Be and Bn, and Cm be joined, Cm muſt be perpendicular to mB; ſince Be or GK is the force of friction ariſing from the preſſure againſt BP, which tends to prevent the wedge from moving either in the direction BP or PB; and Bn or FZ has a ſimilar effect with reſpect to the direction in the line BQ; and by hypotheſis, BC is juſt ſufficient to balance theſe forces. It is alſo evident from what was ſaid concerning the inclined plane, that Be and Bn muſt be taken in the directions PB and QB for the moving force, but in the directions BP and BQ for the ſuſpending force.

The method of calculation is evident; for as aB, AG, and AF, are perpendicular to QP, BP, and BQ, the triangles QPB and CAG are ſimilar, and the parallelogram Bnme ſimilar to FAGC; whence by ſuppoſing certain parts given, the reſt may be found, &c.

Corollary. When the wedge is iſoſceles, the point m falls on C, and Bc is equal to Bn, and therefore Be or GK is equal to (AB+BC)PB): (n.QP); but PB : Ba:: 2 Be: BC, and therefore BC=2 Ba (AB+BC : (n.QP)

or

or equal to (2Ba.BA) : (n.QP—2Ba), and therefore AC = (n.QP.AB) : (n.QP—2Ba;) and by following the same method for the ſuſpending force, we find BC = (2Ba.AB) : (n.QP+2Ba,) and conſequently AC is equal to (n.QP.AB) : (n.QP+2Ba.)

SCHOLIUM.

By proceeding in a ſimilar method, the forces of the arch-ſtones of bridges may be determined; for let QbbP be a ſtone ſuſtained by the parts of the arch preſſing againſt Pb and Qb, and let A be its center of gravity, and AB perpendicular to the horizon; alſo let AB and AC be the ſame as before; then becauſe the body is in equilibrio, the force in direction AC will be equivalent to the force in a contrary direction, ariſing from the preſſures againſt the body in the directions GA and KA, together with the force of friction; and becauſe the preſſures are AG and AK, if Be (the n part of AG) be drawn parallel to PB; and Bn (the n part of AK) be drawn parallel to QB; and the parallelogram Bnme be compleated, and Cm joined; Bm will be the force ariſing from friction, and the angle BmC a right angle. The adjacent figure * is for the moving force; but the method is ſimilar for the ſuſpenſive force; and it is evident that the one conſtruction is of uſe to determine the force which tends to break an arch by preſſing it downwards, and the other the force that tends to break it upwards.

But as that excellent mathematician *P. Friſi*, in his *Inſtituzioni di Meccanica*, has objected to the diviſion of the force AB into the forces AN and AH, and thence concluded *Belidor* and *Couplet* to have been miſtaken on that account in their writing upon bridges; I ſhall, therefore,

* Fig. 16.

therefore, prove that the common method is really a conſequence of what that gentleman himſelf allows, and that his objections are not well founded. In the firſt place, he allows the force AB to be equivalent to the forces AV and AD or VB; now (excluding friction) if that part of the arch which touches Pb was removed, it is evident QbbP would immediately begin to deſcend along Qb with a force repreſented by VB or AD; but this deſcent is prevented by that part of the arch which touches Pb; and therefore the force of that arch, in the direction HA, muſt be ſuch as to be equivalent to DA in the direction DA or BV: but no force greater or leſs than HA will be equivalent to DA in the direction DA, and therefore HA is the real preſſure or force againſt Pb. Again, HD is the preſſure in a perpendicular direction to Qb ariſing from this force; and as AV is the preſſure againſt Qb ariſing from the force AB, therefore AV, together with HD, is the whole preſſure againſt Qb in the direction AV; but becauſe the body is in equilibrio, and conſequently the action or force in the direction AV equal to the re-action in a contrary direction; therefore AV+HD or AN (becauſe NV is equal to HD by the property of the parallelogram) repreſents the preſſure againſt Qb, and AH the preſſure againſt Pb; which is contrary to what *P. Friſi* aſſerts, and agreeable to the uſual method.

The ſame learned author has made another very material miſtake, from a ſimilar cauſe, at page 67 of the aforeſaid Treatiſe, relative to the tenſion of ropes; which cannot be attributed to haſte or inadvertency, as he expreſsly aſſerts the holders of the common opinion to be miſtaken, in conſequence of their uſing the theory of compoſition of forces without ſufficient precaution: I ſhall, therefore, after giving his own words, take the liberty of ſhewing where I apprehend he is miſtaken.

" Parleremo

" Parleremo più a lungo delle altre ricerche matematiche, alle quali ha dato occasione la controversia insorta intorno alla cupola di S. Pietro. Coll' occasione che si è discorso in Milano di munire la fabbricca del Duomo di un Conduttore elettrico, che dalla cima dell' aguglia si dirimasse, e scendesse per differenti parti del tempio, si è ancora parlato dell azione, che i fili del Conduttore potrebbero esercitare contra l'aguglia, e si sonso proposti varj Problemi intorno alle tensioni delle funi. Io qui aggiugneró le soluzioni, che ho ritrovato, e incominciero dalla prima risoluzioni, delle forze tendenti, laquale siccome é interamente differente da quella, que hanno seguitato altri Autori, cosi non sará meravaglia che porti dei risultati interamente differenti da quelli che sono stati finora publicati. Penda il * filo, QVR, dai punti Q, ed R, e vi si attacchi in V il peso P. si produca la verticale PV in A; si esprima il peso P colla retta AV, e dal punto A; si tirino sopra RV, RV le perpendicolari AM, AN. Sara MV l'intera forza esercitata secondo QV, ed NV sará quella che si eserciterá secondo RV.

" La stessa cosi si dedurrebbe risolvendo la forza AV nelle due Aq, Ar parallele ai fili QV, RV, e poi risolvendo di nuovo la forza Aq nelle due AN, Nq, e similmente la Ar in due altre AM, Mr. Mentre conqueste risoluzioni é manifesto che la forza totale esercitata nel tendere il filo QV dev'essere Aq—Mr=rV—Mr=MV, e la tensione del filo RV=Vq—Nq=NV.

" S'ingannerebbe chi misuraße separamente la tensione del filo QV dalla forza Aq, ossia rV, e la tensione di RV da Ar, oppure da qV. Egli è vero, che le due tensioni equivalgono insieme, come alla sola forza AV così ancora alle due Ar, Aq, oppure alle quattro insieme AN, Nq, AM, Mr. ma nel prendere le tensioni sepa-

rat

Fig. 17.

rate biſogna in oltre avvertire, che quando l' angolo QVR non è retto, una porzione di Aq agiſce ſecondo RV, ed una porzione di Ar ſecondo QV: e ſeparando le azioni ſara MV, la tenſione del filo QV, ed NV quella di RV."

In the firſt place, I ſhall demonſtrate the truth of the eſtabliſhed method from principles that FRISI has himſelf allowed; and, ſecondly, point out the abſurdity of his concluſions.

1. Let Vn and Sr be parallel to AN; then becauſe NVn is a right angle, and the force VA may be reſolved into VN and Vn, in thoſe directions, therefore, if RV and VP were to remain in the ſame poſition, and the force which now keeps the body ſuſpended by acting in the direction VQ, was to act in the direction VN with a force expreſſed by Vn, it is then granted that the equilibrium would ſtill be maintained, and the tenſions would be as Vn and VN; and, therefore, as no force VS whatever, acting at V in the direction RV, can have any effect in the direction Vn perpendicular to RV, it neceſſarily follows, that the force in any other direction VQ, muſt be ſuch as to be equivalent to Vn in the direction Vn; but it is likewiſe granted, that no other force but Vr in the direction VQ can be equivalent to Vn in the direction Vn; and as the force Vr is equivalent to Vn and VS, and as VS, or its equal, qN, only gives an additional tenſion to NV, the tenſion which the cord RV was ſuppoſed to have before, which whole tenſion is equal to the re-action of the tack R; therefore qV is the tenſion of the cord RV, and Vr that of Qv.

2. Let the points Q and R coincide, and RV, QV, and VP, will then be perpendicular to the horizon; and if VQ or VR be aſſumed to expreſs the weight P, then

then will the points A, R, Q, M, and N, coincide; and according to *Frisi's* principle, the tensions of RV, VQ, and VP, will be equal; but, from the well-known principle of the pulley, each cord VQ and VR bears but half the weight P, and therefore this absurditv follows, that a cord is as much stretched with half the weight as it would with the whole.

Again, if the points R, V, and Q, be supposed horizontal, it follows, from the common theory, that the tension of the rope RVQ would be infinite; but VN and VM vanish when RVQ is horizontal; and therefore, by *Frisi's* principle, the tension in that case would be nothing at all; but it is well known from the most common experiments to be very considerable, even when RQV is but nearly horizontal; and therefore the new theory of this great mathematician is indefensible.

Remark. All the foregoing, except the last Scholium, was written in 1775, before the Author had seen any thing to speak of on the subject. He had designed and executed great part of an extensive treatise on friction, according to different hypotheses; but as nobody would be at the risk of publishing it, and he could not afford it himself, the most of it was accidentally lost. What is here given is an extract only of some of the first part, where velocity was not taken into the account, and where there were no complicated algebraic or fluxional expressions, which would be difficult to print in this country.

TO THE HONOURABLE

SIR WILLIAM JONES,

Preſident of the Aſiatick Society.

SIR,

I HAVE the honour to obey the orders of the Honourable the Governor General and Council, in tranſmitting to you, for the information of the *Aſiatick Society*, an Extract of a Letter addreſſed to the Governor General, on the 2d of laſt Month, by Lieutenant SAMUEL TURNER, who was appointed on an Embaſſy to *Tibet;* and a Copy of an Account encloſed in it, of Mr. TURNER's Interview with TEESHOO LAMA, at the Monaſtery of *Terpaling.*

I have the honour to be, with great reſpect,

SIR,

Your moſt obedient and moſt humble Servant,

E. HAY, *Secretary.*

Council Chamber,
Political Department, April 13, 1784.

EXTRACT

EXTRACT *of a* LETTER *from Mr.* SAMUEL TURNER *to the Honourable the* GOVERNOR GENERAL, *dated* Patna, 2d *March*, 1784.

DURING my reſidence in *Tibet*, it was an object I had much at heart, to obtain an interview of the infant *Teeſhoo Lama*; but the Emperor of *China's* general orders, reſtricting his guardians to keep him in the ſtricteſt privacy, and prohibiting indiſcriminately, the admiſſion of all perſons to his preſence, even his votaries, who ſhould come from a diſtance, appeared to me an obſtacle almoſt inſurmountable; yet, however, the Rajah, mindful of the amity ſubſiſting between the Governor and him, and unwilling, I believe, by any act, to hazard its interruption, at length conſented to grant me that indulgence. As the meeting was attended with very ſingular and ſtriking circumſtances, I could not help noting them with moſt particular attention; and though the repetition of ſuch facts, interwoven and blended as they are with ſuperſtition, may expoſe me to the imputation of extravagance and exaggeration, yet I ſhould think myſelf reprehenſible to ſuppreſs them; and while I diveſt myſelf of all prejudice, and aſſume the part of a faithful narrator, I hope, however tedious the detail I propoſe to enter into may be found, it will be received with candour, and merit the attention of thoſe for whoſe peruſal and information it is intended, were it only to mark a ſtrong feature in the national character, of implicit homage to the great religious Sovereign, and to inſtance the very uncommon, I may ſay almoſt unheard-of, effects of early tuition.

I ſhall, perhaps, be ſtill more juſtified in making this relation, by adverting to that very extraordinary aſſurance the Rajah of *Teeſhoo Loomboo* made me but a few days before my departure from his court, which, without

out further introduction, I will beg leave literally to recite.

At an interview he allowed me, after having given me my audience of leave, he ſaid, "I had yeſterday a "viſion of our tutelary deity, and to me it was a day "replete with much intereſting and important matter. "This guardian power, who inſpires us with his illu-"minations on every momentous and great occaſion, "indulged me with a divination, from which I have "collected that every thing will be well. Set your "heart at reſt; for though a ſeparation is about to take "place between us, yet our friendſhip will not ceaſe to "exiſt; but, through the favour of interpoſing Provi-"dence, you may reſt aſſured it will increaſe, and ter-"minate eventually in that which will be for the beſt."

I ſhould have paid leſs regard to ſo ſtrange an obſervation, but for this reaſon, that, however diſſonant from other doctrines their poſitions may be found, yet I judge they are the beſt foundation to build our reliances upon; and ſuperſtition combining with inclination to implant ſuch friendly ſentiments in their minds, will ever conſtitute, the opinion having once obtained, the ſtrongeſt barrier to their preſervation. Oppoſed to the prejudices of a people, no plan can reaſonably be expected to take place: agreeing with them, ſucceſs muſt be the reſult.

A true Extract,

E. HAY,

Secretary to the Governor General and Council.

COPY

VII.

Copy *of an Account given by Mr.* Turner, *of his Interview with* Teeshoo Lama *at the Monaſtery of* Terpaling, *encloſed in Mr.* Turner's *Letter to the Honourable the* Governor General, *dated* Patna, 2d *March*, 1784.

ON the 3d of December, 1783, I arrived at *Terpaling*, ſituated on the ſummit of a high hill; and it was about noon when I entered the gates of the Monaſtery, which was not long ſince erected for the reception and education of *Teeſhoo Lama*. He reſides in a Palace in the center of the Monaſtery, which occupies about a mile of ground in circumference, and the whole is encompaſſed by a wall. The ſeveral buildings ſerve for the accommodation of three hundred *Gylongs*, appointed to perform religious ſervice with *Teeſhoo Lama*, until he ſhall be removed to the Monaſtery and Muſnud of *Teeſhoo Loomboo*. It is unuſual to make viſits either here or in *Bootan* on the day of arrival: we therefore reſted this day, only receiving and ſending meſſages of compliment.

On the 4th, in the morning, I was allowed to viſit *Teeſhoo Lama*, and found him placed in great form upon his Muſnud. On the left ſide ſtood his father and mother, on the other the officer particularly appointed to wait upon his perſon. The Muſnud is a fabric of ſilk cuſhions, piled one upon the other until the ſeat is elevated to the height of four feet from the floor; embroidered ſilk covered the top; and the ſides were decorated with pieces of ſilk of various colours,

ſuſpended from the upper edge, and hanging down. By the particular requeſt of *Teeſhoo Lama's* father, Mr. *Saunders* and myſelf wore the Engliſh dreſs.

I advanced; and, as is the cuſtom, preſented a white pelong handkerchief; and delivered alſo into the *Lama's* hands, the Governor's preſent of a ſtring of pearls and coral, while the other things were ſet down before him. Having performed the ceremony of the exchange of handkerchiefs with his father and mother, we took our ſeats on the right of *Teeſhoo Lama*.

A multitude of perſons, all thoſe ordered to eſcort me, were admitted to his preſence, and allowed to make their proſtrations. The infant *Lama* turned towards them, and received them all with a cheerful and ſignificant look of complacency. His father then addreſſed me in the *Tibet* language, which was explained to me by the interpreter, that *Teeſhoo Lama* had been uſed to remain at reſt until this time of the day; but he had awoke very early this morning, and could not be prevailed on to remain longer in bed; for, added he, "the "*Engliſh* Gentlemen were arrived, and he could not "ſleep." During the time we were in the room, I obſerved the *Lama's* eyes were ſcarce ever turned from us; and when our cups were empty of tea, he appeared uneaſy, and throwing back his head, and contracting the ſkin of his brow, he kept making a noiſe, for he could not ſpeak, until they were filled again. He took out of a golden cup, containing confects, ſome burnt ſugar, and ſtretching out his arm, made a motion to his attendants to give them to me. He then ſent ſome in like manner to Mr. *Saunders*, who was with me. I found myſelf, though viſiting an infant, under the neceſſity of

ſaying

ſaying ſomething; for it was hinted to me, that, notwithſtanding he is unable to reply, it is not to be inferred that he cannot underſtand. However, his incapacity of anſwering excuſed me many words; and I juſt briefly ſaid, That the Governor-General, on receiving the news of his deceaſe in *China*, was overwhelmed with grief and ſorrow, and continued to lament his abſence from the world, until the cloud that had overcaſt the happineſs of this nation by his re-appearance was diſpelled; and then, if poſſible, a greater degree of joy had taken place than he had experienced of grief on receiving the firſt mournful news. The Governor wiſhed he might long continue to illumine the world with his preſence; and was hopeful that the friendſhip which had formerly ſubſiſted between them would not be diminiſhed, but rather that it might become ſtill greater than before; and that, by his continuing to ſhew kindneſs to my countrymen, there might be an extenſive communication between his votaries and the dependants of the *Britiſh* nation. The little creature turned, looking ſtedfaſtly towards me with the appearance of much attention while I ſpoke, and nodded with repeated but ſlow movements of the head, as though he underſtood and approved every word, but could not utter a reply. The parents, who ſtood by all the time, eyed their ſon with a look of affection, and a ſmile expreſſive of heartfelt joy at the propriety of the young *Lama's* conduct. His whole regard was turned to us: he was ſilent and ſedate, never once looking towards his parents, as if under their influence at the time; and with whatever pains his manners may have been formed ſo correct, yet I muſt own his behaviour on this occaſion, appeared perfectly natural and ſpontaneous, and not directed by any action or ſign of authority.

The ſcene in which I was here brought to take a part, was too new and extraordinary, however trivial, if not

abſurd, as it may appear to ſome, not to claim from me great attention, and conſequently minute remark.

Teeſhoo Lama is at this time about 18 months of age. He did not ſpeak a word, but made moſt expreſſive ſigns, and conducted himſelf with aſtoniſhing dignity and decorum. His complexion is of that hue which in *England* we ſhould term rather brown, but not without colour. His features good, ſmall black eyes, an animated expreſſion of countenance; and altogether I thought him one of the handſomeſt children I had ever ſeen. I had but little converſation with the father. He told me he had directions to entertain me three days on account of *Teeſhoo Lama*; and entreated me with ſo much earneſtneſs to paſs another on his own account, that I could not reſiſt complying with his requeſt. He then invited us for to-morrow to an entertainment he propoſed to make at a ſmall diſtance from the Monaſtery, which invitation having accepted, we took our leave, and retired.

In the courſe of the afternoon I was viſited by two officers of the *Lama's* houſehold, both of whom are immediately attendant on his perſon. They ſat and converſed with me ſome time, enquired after Mr. *Bogle*, whom both of them had ſeen; and then remarking how extremely fortunate it was the young *Lama's* having regarded us with very particular notice, obſerved on the very ſtrong partiality of the former *Teeſhoo Lama* for the *Engliſh*, and that the preſent one often tried to utter the name of the *Engliſh*. I encouraged the thought, hopeful that they would teach the prejudice to ſtrengthen with his encreaſing age; and they aſſured me that ſhould he, when he begins to ſpeak, have forgot, they would early teach him to repeat the name of *Haſtings*.

On the morning of the 6th, I again waited on *Teeſhoo Lama*, to preſent ſome curioſities I had brought for him from *Bengal*. He was very much ſtruck with a ſmall clock, and had it held to him, watching for a long time the revolutions of the moment hand: he admired it, but with gravity, and without any childiſh emotion. There was nothing in the ceremony different from the firſt day's viſit. The father and mother were preſent. I ſtaid about half an hour, and retired, to return and take leave in the afternoon.

The votaries of *Teeſhoo Lama* already begin to flock in numbers to pay their adorations to him. Few are yet admitted to his preſence. Thoſe who come, eſteem it a happineſs if he is but ſhewn to them from the window, and they are able to make their proſtrations before he is removed. There came to-day a party of *Kilmaaks (Calmuc Tartars)* for purpoſes of devotion, and to make their offerings to the LAMA. When I returned from viſiting him, I ſaw them ſtanding at the entrance of the ſquare in front of the palace, each with his cap off, his hands being placed together elevated, and held even with his face. They remained upwards of half an hour in this attitude, their eyes fixed upon the apartment of the LAMA, and anxiety very viſibly depicted in their countenances. At length, I imagine, he appeared to them; for they began all together by lifting their hands, ſtill cloſed, above their heads, then bringing them even with their faces, and after lowering them to their breaſts, then ſeparating them: to aſſiſt them in ſinking and riſing, they dropt upon their knees, and ſtruck their heads againſt the ground. This with the ſame motions was repeated nine times. They afterwards advanced to deliver their preſents, conſiſting of talents of gold and ſilver, with the products of their country, to the proper officer, who having received them, they retired apparently with much ſatisfaction.

Upon enquiry, I learnt that offerings made in this manner are by no means unfrequent, and, in reality, conſtitute one of the moſt copious ſources from which the *Lamas* of *Tibet* derive their wealth.

No one thinks himſelf degraded by performing theſe humiliations. The perſons I allude to, who came for this devout purpoſe, were attendant on a man of ſuperior rank, that ſeemed to be more engroſſed than the reſt in the performance of the ceremony. He wore a rich ſatin garment, lined with fox ſkins; and a cap with a taſſel of ſcarlet ſilk flowing from the center of the crown upon the ſides all round, and edged with a broad band of *Siberian* fur.

According to appointment, I went in the afternoon to make my laſt viſit to *Teeſhoo Lama*. I received his diſpatches for the Governor-General, and from his parents two pieces of ſatin for the Governor, with many compliments.

They preſented me with a veſt, lined with lambſkins, making many aſſurances of a long remembrance, and obſerving that at this time *Teeſhoo Lama* is an infant, and incapable of converſing, but they hoped to ſee me again when he ſhall have become of age. I replied, that, by favor of the *Lama*, I might again viſit this country: I looked forward with anxiety to the time when he ſhould mount the Muſnud, and ſhould then be extremely happy in the opportunity of paying my reſpects. After ſome expreſſions and proteſtations of mutual regard, my viſit was concluded. I received the

the handkerchiefs, and took my leave; and am to purſue my journey toward *Bengal* to-morrow at the dawn of day.

Signed) SAMUEL TURNER.

A true Copy,

E. HAY,

Secretary to the Governor General and Council.

To-

To Sir WILLIAM JONES, Knight,

Preſident of the Aſiatick Society.

SIR,

THE Honorable the Governor-General having received and laid before the Board, a Letter addreſſed to him by Lieutenant Samuel Turner, containing the Account of a Journey made to *Teeſhoo Loomboo*, by a *Goſſeyn* named Poorungeer, and the Circumſtances of his Reception by Teeshoo Lama, and the Board deeming it worthy of the Attention of the *Aſiatick Society*, I have the Honor, in Obedience to their Directions, to tranſmit to you a Copy of it.

I have the Honor to be,

SIR,

Your moſt obedient humble Servant,

E. HAY, *Secretary.*

Fort William,
Secret Department, Feb. 22. 1786.

VIII.

An Account of a Journey to Tibet.

TO THE HONORABLE

JOHN MACPHERSON, ESQ.

GOVERNOR-GENERAL, *&c.*

Fort William.

HONORABLE SIR,

HAVING, in obedience to the inſtructions with which you were pleaſed to honour me, examined *Poorungeer*, the Goſſeyn, who has at different times been employed in deputations to the late *Teeſhoo Lama*, formerly accompanied him to the court of *Pekin*, and who is lately again returned from *Tibet*, and having collected from him ſuch an account of the journey he has juſt performed, and other information, as he could give me relative to the countries he had left, I beg leave to ſubmit it to you in the following narrative.

In the beginning of laſt year, *Poorungeer*, having received diſpatches from Mr. *Haſtings*, a ſhort time previous to his departure from *Bengal*, for *Teeſhoo Lama*, and the Regent of *Teeſhoo Loomboo*, immediately ſet about preparing for the diſtant journey he had engaged to undertake, which employed him until the beginning

of

of the following month of March, when I beg leave to recal to your remembrance, I had the honor to preſent him to you for his diſmiſſion. He then commenced his journey from *Calcutta*, and early in the month of April had paſſed, as he relates, the limits of the Company's Provinces, and entered the mountains that conſtitute the Kingdom of *Bootan*, where, in the proſecution of his journey, he received from the ſubjects of the *Daib Raja*, the moſt ample and voluntary aſſiſtance to the frontier of his territory; nor met with any impediment to oppoſe his progreſs until he came upon the borders of *Tibet*. Here he was compelled to halt for near a fortnight by a heavy fall of ſnow, that commenced upon his arrival, and continued inceſſantly for the ſpace of ſix days, covering the face of the country to ſo great a depth, as totally to put a ſtop to all travelling, and render it impracticable for him to proceed until a thaw ſucceeded to open the communication. During the time of his confinement at *Phari*, he ſays, ſuch was the ſeverity of the cold, and the injurious effect ſo rapid a tranſition from a temperate climate had on the health of himſelf and his companions, that it left him little room to doubt, if an early change had not fortunately taken place, and permitted his advance, that they muſt all have fallen victims to the inclemency of the weather.

However, as early as it was poſſible for him to leave *Phari*, he proceeded by long ſtages on his journey, and, without encountering any further difficulty, on the 8th of May following, reached *Teeſhoo Loomboo*, the capital of *Tibet*. Immediately upon entering the Monaſtery, he went to the Durbar of the Regent *Punjur Intinnee Nemohein* to announce his arrival, and the purpoſe of his commiſſion. Quarters were then allotted for his reſidence, and an hour fixed for him to wait upon *Teeſhoo Lama*; who, as he was informed the following morning, intended to leave the Palace to occupy one

of

of his gardens, ſituated on the plain within ſight of the Monaſtery, where it was viſible a conſiderable encampment had been formed. The *Lama* quitted his apartment at the firſt dawn of day, and was lodged in the tents pitched for his accommodation before the ſun had riſen.

In the courſe of the morning, at the hour appointed for his admiſſion, *Poorungeer* went down to the *Lama's* tents. He heard, on entering the gates of the encloſure, that the young *Lama* was taking his recreation in the garden, ranging about, which became with him a very favourite amuſement. As it was at this time in *Tibet* the warmeſt part of the year, that he might enjoy the benefit of the air, his attendants had choſen a ſpot where the trees afforded a complete ſhade, to place an elevated ſeat of cuſhions for the young *Lama*, after his exerciſe, to reſt upon. In this ſituation *Poorungeer* found him, when ſummoned to his preſence, attended by the Regent, his parents, *Soopoon Choomboo*, the cupbearer, and the principal officers of the court. After making three obeiſances at as remote a diſtance as it was poſſible, *Poorungeer* approached, and preſented to the *Lama*, according to the cuſtom of *Tibet*, a piece of white pelong, and then delivered the letters and preſents with which he had been charged. The packages were all immediately opened before the *Lama*, who had every article brought near to him, and viewed them ſeparately one by one. The letter he took into his own hand, himſelf broke the ſeal, and taking from under the cover a ſtring of pearls, which it encloſed, ran them over between his fingers, as they read their roſaries, and then with an arch air placed them by his ſide, nor would, while the narrator was in his preſence, permit any one to take them up. *Poorungeer* ſays the young *Lama* regarded him with a very kind and ſignificant look,

look, ſpoke to him in the *Tibet* language, and aſked him if he had had a fatiguing journey. The interview laſted more than an hour, during all which time the *Lama* ſat with the utmoſt compoſure, not once attempting to quit his ſeat, nor diſcovering the leaſt forward uneaſineſs at his confinement. Tea was twice brought in, and the *Lama* drank a cup each time. When ordered to accept his diſmiſſion, *Poorungeer* approached the *Lama*, and bowing before him, preſented his head uncovered to receive his bleſſing, which the young *Lama* gave by ſtretching out his hand, and laying it upon his head. He then ordered him, as long as he reſided at *Teeſhoo Loomboo*, to come to him once every day.

The following morning *Poorungeer* waited upon the Regent at his apartments in the Palace, to whom, after obſerving the cuſtomary forms of introduction, he delivered his diſpatches. After this he viſited *Soopoon Choomboo*, the *Lama's* parents, and others, to whom he was before known, and ſays he experienced from all quarters the moſt cordial and kind reception; for they had been long uſed to conſider him as an agent of the Government of *Bengal*. He found no change whatever to have enſued in the adminiſtration ſince his attendance upon me in *Tibet*. The country enjoyed perfect tranquillity; and the only event that had taken place of importance in their annals, was the inauguration of the infant *Lama*, which happened the preceding year; and as this conſtitutes a concern of the higheſt moment, whether conſidered in a political or religious point of view, being no leſs than the recognizance, in an infant form, of their regenerated immortal Sovereign and Eccleſiaſtical Supreme, I was induced to beſtow more than common pains to trace the ceremonies that attended the celebration of ſuch a great event, conceiving that the novelty of the ſubject might render the account curious, if even it ſhould be found to contain no information

mation of real utility. I ſhall therefore, without further apology, ſubjoin the reſult of my enquiries, premiſing only, that my authority for the deſcription is derived principally from *Poorungeer*, and confirmed, with ſome additional particulars, by the concurring reports of a Goſſeyn who was at that time himſelf preſent on the ſpot.

The Emperor of *China* appears, on this occaſion, to have aſſumed a very conſpicuous part, in giving teſtimony of his reſpect and zeal for the great religious Father of his Faith. Early in the year 1784, he diſpatched Ambaſſadors from the court of *Pekin* to *Teeſhoo Loomboo*, to repreſent their Sovereign in ſupporting the dignity of the High Prieſt, and do honor to the occaſion of the aſſumption of his office. *Dalai Lama*, and the Viceroy of *Laſſa*, accompanied by all the court, one of the *Chineſe* Generals ſtationed at *Laſſa*, with a part of the troops under his command, two of the four magiſtrates of the city, the heads of every monaſtery throughout *Tibet*, and the Emperor's Ambaſſadors, appeared at *Teeſhoo Loomboo* to celebrate this epocha in their theological inſtitutions. The 28th day of the ſeventh moon, correſponding nearly, as their year commences with the vernal equinox, to the middle of October, 1784, was choſen as the moſt auſpicious for the ceremony of inauguration; a few days previous to which the *Lama* was conducted from *Terpaling*, the Monaſtery in which he had paſſed his infancy, with every mark of pomp and homage that could be paid by an enthuſiaſtic people. So great a concourſe, as aſſembled either from curioſity or devotion, was never ſeen before; for not a perſon of any condition in *Tibet* was abſent who could join the ſuite. The proceſſion was hence neceſſarily conſtrained to move ſo ſlow, that though *Terpaling* is ſituated at the diſtance of twenty miles only from *Teeſhoo Loomboo*, three days expired in the performance of this ſhort march. The firſt halt was made

made at *Tſondue*; the ſecond at *Summaar*; about ſix miles off whence the moſt ſplendid parade was reſerved for the *Lama's* entry on the third day; the account of which is given me by a perſon who was preſent in the proceſſion. The road, he ſays, was previouſly prepared by being whitened with a waſh, and having piles of ſtones heaped up, with ſmall intervals between, on either ſide. The retinue paſſed between a double row of prieſts, who formed a ſtreet extending all the way from *Summaar* to the gates of the Palace. Some of the prieſts held lighted rods of a perfumed compoſition, that burn like decayed wood, and emit an aromatic ſmoke; the reſt were furniſhed with the different muſical inſtruments they uſe at their devotions, ſuch as the gong, the cymbal, hautboy, trumpets, drums, and ſea-ſhells, which were all ſounded in union with the hymn they chanted. The croud of ſpectators were kept without the ſtreet, and none admitted on the high road, but ſuch as properly belonged to, or had a preſcribed place in, the proceſſion, which was arranged in the following order.

The van was led by three military commandants, or governors of diſtricts, at the head of 6 or 7000 horſemen, armed with quivers, bows, and matchlocks. In their rear followed the Ambaſſador, with his ſuite, carrying his diploma, as is the cuſtom of *China*, made up in the form of a large tube, and faſtened on his back. Next the *Chineſe* General advanced with the troops under his command, mounted and accoutred after their way with fire arms and ſabres; then came a very numerous group, bearing the various ſtandards and inſignia of ſtate. Next to them moved a full band of wind and other ſonorous inſtruments; after which were led two horſes, richly capariſoned, each carrying two large circular ſtoves, diſpoſed like panniers acroſs the horſe's back, and filled with burning aromatic woods.

Theſe

Theſe were followed by a ſenior prieſt, called a *Lama*, who bore a box, containing books of their form of prayer, and ſome favourite idols. Next nine ſumptuary horſes were led, loaded with the *Lama's* apparel; after which came the prieſts immediately attached to the *Lama's* perſon for the performance of daily offices in the Temple, amounting to about 700; following them were two men, each carrying on his ſhoulder a large cylindrical gold inſignium, emboſſed with emblematical figures, (a gift from the Emperor of *China.)* The *Duhunniers* and *Soopoons*, who were employed in communicating addreſſes, and diſtributing alms, immediately preceded the *Lama's* bier, which was covered with a gaudy canopy, and borne by eight of the ſixteen *Chineſe* appointed for this ſervice. On one ſide of the bier attended the Regent, on the other the *Lama's* Father. It was followed by the heads of the different monaſteries; and as the proceſſion advanced, the prieſts who formed the ſtreet fell in in the rear, and brought up the ſuite, which moved at an extremely ſlow pace, and about noon was received within the confines of the Monaſtery, amidſt an amazing diſplay of colours, the acclamations of the croud, ſolemn muſic, and the chanting of their prieſts.

The *Lama* being ſafely lodged in the Palace, the Regent and *Soopoon Choomboo* went out, as is a cuſtomary compliment paid to viſitors of high rank on their near approach, to meet and conduct *Delai Lama* and the Viceroy of *Laſſa*, who were on the way to *Teeſhoo Loomboo.* Ther retinues encountered the following morning at the foot of *Painom* Caſtle, and the next day together entered the Monaſtery of *Teeſhoo Loomboo*, in which both *Dalai Lama* and the Viceroy were accommodated during their ſtay.

The

The following morning, which was the third after *Teeſhoo Lama*'s arrival, he was carried to the great Temple, and about noon ſeated upon the throne of his progenitors; at which time the Emperor's Ambaſſador delivered his diploma, and placed the preſents with which he had been charged at the *Lama*'s feet.

The three next enſuing days *Dalai Lama* met *Teeſhoo Lama* in the Temple, where they were aſſiſted by all the prieſts in the invocation and public worſhip of their Gods. The rites then performed completed, as I underſtand, the buſineſs of inauguration. During this interval, all who were at the capital were entertained at the public expence, and alms were diſtributed without reſerve. In conformity likewiſe to previous notice, circulated every where for the ſame ſpace of time, univerſal rejoicings prevailed throughout *Tibet*. Banners were unfurled on all their fortreſſes, the peaſantry filled up the day with muſic and feſtivity, and the night was celebrated by general illuminations. A long period was afterwards employed in making preſents and public entertainments to the newly inducted *Lama*, who, at the time of his acceſſion to the Muſnud, or (if I may uſe the term) Pontificate, of *Teeſhoo Loomboo*, was not three years of age. The ceremony was begun by *Dalai Lama*, whoſe offerings are ſaid to have amounted to a greater value, and his public entertainments to have been more ſplendid, than the reſt. The ſecond day was dedicated to the Viceroy of *Laſſa*. The third to the *Chineſe* General. Then followed the Culloong or Magiſtrates of *Laſſa*, and the reſt of the principal perſons who had accompanied *Dalai Lama*. After which the Regent of *Teeſhoo Loomboo*, and all that were dependent on that government, were ſeverally admitted, according to pre-eminence of rank, to pay their tributes of obeiſance and reſpect. As ſoon as the acknowledgments of all thoſe were received who were admiſ-

 ſible

ſible to the privilege, *Teeſhoo Lama* made, in the ſame order, ſuitable returns to each, and the conſummation laſted forty days.

Many importunities were uſed with *Dalai Lama* to prolong his ſtay at *Teeſhoo Loomboo*, but he excuſed himſelf from incumbering the capital any longer with ſo numerous a concourſe of people as attended on his movements, and deeming it expedient to make his abſence as ſhort as poſſible from the ſeat of his authority, at the expiration of forty days he withdrew with all his ſuite to *Laſſa*, and the Emperor's Ambaſſador received his diſmiſſion to return to *China:* and thus terminated this famous feſtival.

With reſpect to the lately eſtabliſhed commercial intercourſe, *Poorungeer* informs me, that though ſo early, he found himſelf not the firſt perſon who had arrived at *Teeſhoo Loomboo* from *Bengal*. Many merchants had already brought their commodities to market, and others followed before he left it. He heard from no quarter any complaint of impediment or loſs, and concludes, therefore, that all adventurers met the ſame eaſy acceſs and ready aid, as he himſelf had every where experienced. The markets are well ſtocked with *Engliſh* and *Indian* articles, yet not in ſo great a degree as to lower the value of commodities below the prices of the two or three laſt preceding years. Bullion was ſomewhat reduced in worth in compariſon with the year 1783. A pootree, or bulſe of gold duſt, the ſame quantity that then ſold for twenty-one indermillees, was procurable of a purer quality for nineteen and twenty indermillees. A talent of ſilver, which was then 500, was 450 indermillees; ſo that the exchange was much in favor of the trader.

Poorungeer,

Poorungeer, during his reſidence at *Teeſhoo Loomboo*, had very frequent interviews with the Regent and the Miniſters, and aſſures me, he found the heartieſt diſpoſitions in them to encourage the commercial intercourſe eſtabliſhed under the auſpices of the late Governor-General, whoſe departure, however, the Regent regretted, as the loſs of the firſt friend and ally he became connected with, of, I believe it may be ſaid, any foreign nation; in whom was acknowledged alſo the original means of opening the communication, and of commencing a correſpondence, between the Governments of *Bengal* and *Tibet*; and although it may be obſerved that, in conſequence of his having, from the beginning, been uſed excluſively to addreſs himſelf to, and acknowledge alone the agents of, Mr. *Haſtings*, his attachments to the *Engliſh* nation had grown not without a great degree of perſonality; yet, free from an unworthy capriciouſneſs of temper, he deſcended not to take advantage of the opening offered by his friend's departure to cloſe the new connection. For ſuch was the reſpect he had learnt to entertain for our national integrity of character, that, under the apparent conviction our views tended to no ſcheme of ambition, but were confined merely to objects of utility and curioſity, *Poorungeer* aſſures me, he expreſſed an anxious deſire for continuing with the ſucceeding Governor-General, the exerciſe of thoſe offices of friendſhip ſo long ſupported by his predeceſſor; and in the hope that his would be met with equal wiſhes, determined to invite you to join him in preſerving the ſame intercourſe of commerce and correſpondence, ſo eſſentially calculated for the benefit of both countries. In conſequence of which, the *Lama* and the Regent addreſſed the letters *Poorungeer* had the honour to deliver to you; tranſlations of which having, in obedience to your directions, been applied for to your *Perſian* tranſlator, I now ſubjoin them.

Copy

Copy of a Letter from TEESHOO LAMA.

" God be praiſed that the ſituation of theſe countries " is in peace and happineſs, and I am always praying " at the altar of the Almighty for your health and pre- " ſervation. This is not unknown: you are certainly " employed in protecting and aſſiſting the whole world, " and you promote the good and happineſs of mankind. " We have made no deviation from the union and una- " nimity which exiſted during the time of the firſt of " nobles, Mr. *Haſtings*, and the deceaſed *Lama*; and " may you alſo grant friendſhip to theſe countries, and " always make me happy with the news of your health, " which will be the cauſe of eaſe to my heart, and con- " firmation to my ſoul. At this time, as friendly offer- " ings of union and unanimity, I ſend one handker- " chief, one ketoo of ſilver, and one piece of cochin. " Let them be accepted."

From the RAJAH *of* Teeſhoo Loomboo.

" God be praiſed that the ſituation of theſe countries " is in peace and happineſs, and I am always praying " at the altar of the Almighty for your health and pre- " ſervation. This is not unknown: I am conſtantly " employed in promoting the advantage of the ſubjects " and the ſervice of the newly-ſeated *Lama*, becauſe " the newly-ſeated *Lama* is not diſtinct from the de- " ceaſed *Lama*, and the light of his countenance is " exalted. Grant your friendſhip to *Poorungeer* Goſ- " ſeyn.

" Maintain union, and unanimity, and affection, like " the firſt of nobles, and every day make me happy " with the news of your health and proſperity: and " beſtow favors like the firſt of nobles, and make me

" happy with letters, which are cauſes of conſolation. " At this time, as friendly offerings of union, and " affection, and unanimity, I ſend one handkerchief, " three tolah of gold, and one piece of cochin. Let " them be accepted."

Poorungeer, having received theſe diſpatches in the beginning of October, after a reſidence of five months at *Teeſhoo Loomboo*, took leave of the *Lama* and the Regent, and ſet out on his return by the ſame route he came to *Bengal*. The weather at this ſeaſon of the year being moſt extremely favorable for travelling, he experienced no delay or interruption in the courſe of his journey through *Tibet* and *Bootan*, but arrived at *Rungpore* early in December, whence he proceeded as expeditiouſly as poſſible to the Preſidency; where, to his great mortification and concern, he finds, upon his arrival, his affairs involved in great diſtreſs; the little territory his adopted Chela was left in charge of, having, during his abſence, been violently invaded by *Raaj Chund*, a neighbouring Zemeendar, and to the amount of fifty begas forcibly taken out of his hands. Prevailed on by his earneſt repeated ſolicitations, I am induced to ſay for him, that in your juſtice and favor are his only hopes of relief from his embarraſſments; and he humbly ſupplicates your protection in reſtoring and ſecuring him in the poſſeſſion of his invaded right. The liberty of this interceſſion, I am confident to think, would be forgiven, were it not in favor of one who has rendered to this Government various uſeful ſervices; but as, though of trivial importance, it affords an authentic inſtance of the encroaching diſpoſition of inferior Zemeendars. Yet another circumſtance it may not be improper to point out. The ground alluded to is a part of the land ſituated upon the weſtern bank of the river oppoſite Calcutta, that was formerly granted under a Sunnud of this Government to *Teeſhoo Lama*,

for the foundation of a temple of worſhip, and as a reſort for ſuch pilgrims of their nation as might occaſionally make viſits to the conſecrated Ganges.

Having, in conformity to your deſires, done my beſt endeavours literally to tranſlate all the information *Poorungeer* could give me, I have now only to apologize for the prolixity of the account, which I have been induced to be particularly minute in, as I conceived every circumſtance, however trivial, might be in ſome degree intereſting, that tends to illuſtrate any trait in the national character of a people we are but recently become acquainted with, and with whom, in its extended views, it has been an object of this Government to obtain a cloſer alliance.

I will not now preſume to intrude longer on your time, by adding any obſervations on conjectures deducible from the elevated importance your young ally ſeems riſing to, in conſequence of the ſignal reſpect paid him by the moſt exalted political characters known to his nation; but beg leave to repeat, that it is with infinite ſatisfaction I learn from the reports of *Poorungeer*, the flouriſhing ſtate of the lately projected ſcheme of trade, to promote which, he aſſures me, not any thing had been wanting in facility of intercourſe; that the adventurers who had inveſted their property, had experienced perfect ſecurity in conducting their commerce, carried their articles to an exceeding good market, and found the rate of exchange materially in their favor.

Thoſe advantages authorize the inference, that it will no doubt encourage more extenſive enterprize; and, permit me to add, I derive a confidence from the ſucceſs of this infant eſſay, that inſpires me with the ſtrongeſt

hopes, that the commiſſion which your Honorable Board was pleaſed to commit to my charge, will eventually be productive of eſſential benefits to the political and commercial intereſts of the Company.

I have the honor to be,

HONORABLE SIR,

With the greateſt reſpect,

Your moſt obedient, faithful,

And moſt humble Servant,

SAMUEL TURNER.

Calcutta, February 8th, 1786.

ON

IX.

ON THE GODS

OF

GREECE, ITALY, AND INDIA,

WRITTEN IN 1784.

And ſince reviſed by the Preſident.

WE cannot juſtly conclude, by arguments preceding the proof of facts, that one idolatrous people muſt have borrowed their deities, rites, and tenets from another; ſince Gods of all ſhapes and dimenſions may be framed by the boundleſs powers of imagination, or by the frauds and follies of men, in countries never connected; but when features of reſemblance, too ſtrong to have been accidental, are obſervable in different ſyſtems of polytheiſm, without fancy or prejudice to color them, and improve the likeneſs, we can ſcarce help believing, that ſome connection has immemorially ſubſiſted between the ſeveral nations who have adopted them. It is my deſign, in this Eſſay, to point out ſuch a reſemblance between the popular worſhip of the old *Greeks* and *Italians* and that of the *Hindus*. Nor can there be room to doubt of a great ſimilarity between their ſtrange religions and that of *Egypt*, *China*, *Perſia*, *Phrygia*, *Phœnicia*, *Syria*; to which, perhaps, we may ſafely add, ſome of the ſouthern kingdoms, and even iſlands of *America*: while the *Gothic* ſyſtem, which prevailed in the northern regions of *Europe*, was not merely ſimilar to thoſe of *Greece* and *Italy*, but almoſt the ſame, in another dreſs, with an embroidery of images apparently *Aſiatick*. From all this, if it be ſatisfactorily proved, we may infer a general union or affinity between the moſt diſtinguiſhed

diſtinguiſhed inhabitants of the primitive world, at the time when they deviated, as they did too early deviate, from the rational adoration of the only true GOD.

There ſeem to have been four principal ſources of all mythology. I. Hiſtorical or natural truth has been perverted into fable by ignorance, imagination, flattery, or ſtupidity; as a king of *Crete*, whoſe tomb had been diſcovered in that iſland, was conceived to have been the God of *Olympus*; and *Minos*, a legiſlator of that country, to have been his ſon, and to hold a ſupreme apellate juriſdiction over departed ſouls; hence too probably flowed the tail of *Cadmus*, as *Bochart* learnedly traces it; hence beacons or volcanos became one-eyed giants, and monſters vomiting flames; and two rocks, from their appearance to mariners in certain poſitions, were ſuppoſed to cruſh all veſſels attempting to paſs between them; of which idle fictions many other inſtances might be collected from the *Odyſſey*, and the various *Argonautick* poems. The leſs we ſay of *Julian* ſtars, deifications of princes or warriors, altars raiſed, with thoſe of *Apollo*, to the baſeſt of men, and divine titles beſtowed on ſuch wretches as *Caius Octavianus*, the leſs we ſhall expoſe the infamy of grave ſenators and fine poets, or the brutal folly of the low multitude: but we may be aſſured, that the mad apotheoſis of truly great men, or of little men falſely called great, has been the origin of groſs idolatrous errors in every part of the Pagan world. II. The next ſource of them appears to have been a wild admiration of the heavenly bodies, and, after a time, the ſyſtems and calculations of aſtronomers; hence came a conſiderable portion of *Egyptian* and *Grecian* fable; the *Sabian* worſhip in *Arabia*; the *Perſian* types and emblems of *Mihr*, or the Sun; and the far extended adoration of the elements and the powers of nature; and hence, perhaps, all the artificial Chronology of the *Chineſe* and *Indians*, with the invention of demi-gods and heroes to fill the vacant niches in their extravagant and imaginary periods. III. Numberleſs

berleſs divinities have been created ſolely by the magick of poetry, whoſe eſſential buſineſs it is to perſonify the moſt abſtract notions, and to place a Nymph or a Genius in every grove, and almoſt in every flower; hence *Hygieia* and *Jaſo*, Health and Remedy, are the poetical daughters of *Æſculapius*, who was either a diſtinguiſhed phyſician, or medical ſkill perſonified; and hence *Chloris*, or verdure, is married to the *Zephyr*. IV. The metaphors and allegories of moraliſts and metaphyſicians, have been alſo very fertile in deities; of which a thouſand examples might be adduced from *Plato*, *Cicero*, and the inventive commentators on *Homer*, in their pedigrees of the Gods, and their fabulous leſſons of morality. The richeſt and nobleſt ſtream from this abundant fountain, is the charming philoſophical tale of *Pſyche*, or *the Progreſs of the Soul*; that which, to my taſte, a more beautiful, ſublime, and well ſupported allegory was never produced by the wiſdom and ingenuity of man. Hence alſo the Indian *Máyá* or, as the word is explained by ſome *Hindoo* ſcholars "*the firſt Inclination of the Godhead to diverſify himſelf*" (ſuch is their phraſe) "*by creating Worlds*," is feigned to be the Mother of univerſal Nature, and of all the inferior Gods; as a *Caſhmirian* informed me when I aſked him, why *Cáma*, or *Love*, was repreſented as her Son: but the word *Máyá*, or *Deluſion*, has a more ſubtle and recondite ſenſe in the *Védánta* philoſophy, where it ſignifies the ſyſtem of *perceptions*, whether of ſecondary or primary qualities, which the Deity was believed by *Epicharmus*, *Plato*, and many truly pious men, to raiſe by his omnipreſent ſpirit in the minds of his creatures; but which had not, in their opinion, any exiſtence independent of mind.

In drawing a parallel between the Gods of the *Indian* and *European* Heathens, from whatever ſource they were derived, I ſhall remember, that nothing is leſs favorable to inquiries after truth than a ſyſtematical ſpirit, and ſhall call to mind the ſaying of a *Hindoo* writer, "that

"that whoever obſtinately adheres to any ſet of opini-
"ons, may bring himſelf to believe that the freſheſt ſan-
"dal-wood is a flame of fire." This will effectually prevent me from inſiſting, that ſuch a God of *India* was the *Jupiter* of *Greece*; ſuch, the *Apollo*; ſuch, the *Mercury*. In fact, ſince all the cauſes of polytheiſm contributed largely to the aſſemblage of *Grecian* Divinities, (though *Bacon* reduces them all to refined allegories, and *Newton* to a poetical diſguiſe of true hiſtory,) we find many *Joves*, many *Apollos*, many *Mercuries*, with diſtinct attributes and capacities: nor ſhall I preſume to ſuggeſt more, than that, in one capacity or another, there exiſts a ſtriking ſimilitude between the chief objects of worſhip in ancient *Greece* or *Italy*, and in the very intereſting country which we now inhabit.

The compariſon, which I proceed to lay before you, muſt needs be very ſuperficial; partly from my ſhort reſidence in *Hinduſtan*, and partly from my want of complete leiſure for literary amuſements; but principally becauſe I have no *European* book to refreſh my memory of old fables, except the conceited, though not unlearned, work of *Pomey*, entitled the *Pantheon*, and that ſo miſerably tranſlated, that it can hardly be read with patience. A thouſand more ſtrokes of reſemblance might, I am ſure, be collected by any one who ſhould with that view peruſe *Heſiod*, *Hyginus*, *Cornutus*, and the other mythologiſts; or, which would be a ſhorter and a pleaſanter way, ſhould be ſatisfied with the very elegant *Syntagmata* of *Lilius Giraldus*.

Diſquiſitions concerning the manners and conduct of our ſpecies in early times, or indeed at any time, are always curious at leaſt, and amuſing; but they are highly intereſting to ſuch as can ſay of themſelves with *Chremes* in the play, "We are men, and take an intereſt in

"all

"all that relates to mankind." They may even be of ſolid importance in an age when ſome intelligent and virtuous perſons are inclined to doubt the authenticity of the accounts delivered by *Moſes* concerning the primitive world; ſince no modes or ſources of reaſoning can be unimportant, which have a tendency to remove ſuch doubts. Either the firſt eleven chapters of *Geneſis* (all due allowances being made for a figurative eaſtern ſtyle) are true, or the whole fabric of our national religion is falſe; a concluſion which none of us, I truſt, would wiſh to be drawn. I, who cannot help believing the divinity of the *Meſſiah*, from the undiſputed antiquity and manifeſt completion of many prophecies, eſpecially thoſe of *Iſaiah*, in the only perſon recorded by hiſtory to whom they are applicable, am obliged, of courſe, to believe the ſanctity of the venerable books to which that ſacred perſon refers as genuine: but it is not the truth of our national religion, as ſuch, that I have at heart; it is truth itſelf; and if any cool, unbiaſſed reaſoner will clearly convince me, that *Moſes* drew his narrative through *Egyptian* conduits from the primeval fountains of *Indian* literature, I ſhall eſteem him as a friend for having weaned my mind from a capital error, and promiſe to ſtand among the foremoſt in aſſiſting to circulate the truth which he has aſcertained. After ſuch a declaration, I cannot but perſuade myſelf, that no candid man will be diſpleaſed, if, in the courſe of my work, I make as free with any arguments that he may have advanced, as I ſhould really deſire him to do with any of mine that he may be diſpoſed to controvert. Having no ſyſtem of my own to maintain, I ſhall not purſue a very regular method, but ſhall take all the Gods, of whom I diſcourſe, as they happen to preſent themſelves; beginning, however, like the *Romans* and the *Hindus*, with *Janus* or *Ganéſa*.

The titles and attributes of this old *Italian* deity are fully compriſed in two choriambick verſes of *Sulpitius*; and

and a further account of him from *Ovid* would here be ſuperfluous:

Jane pater, *Jane* tuens, dive biceps, biformis,
O cate rerum ſator, O principium deorum!

"Father *Janus*, all-beholding *Janus*, thou divinity "with two heads, and with two forms; O ſagacious "planter of all things, and leader of deities!"

He was the God, we ſee, of *Wiſdom*; whence he is repreſented on coins with *two*, and, on the *Hetruſcan* image found at *Faliſci*, with *four*, faces; emblems of prudence and circumſpection: thus is *Ganéſa*, the God of *Wiſdom* in *Hinduſtan*, painted with an *Elephant's* head, the ſymbol of ſagacious diſcernment, and attended by a favourite *rat*, which the *Indians* conſider as a wiſe and provident animal. His next great character (the plentiful ſource of many ſuperſtitious uſages) was that from which he is emphatically ſtyled *the father*, and which the ſecond verſe before cited more fully expreſſes, *the origin and founder of all things*. Whence this notion aroſe, unleſs from a tradition that he firſt built ſhrines, raiſed altars, and inſtituted ſacrifices, it is not eaſy to conjecture; hence it came, however, that his name was invoked before any other God; that, in the old ſacred rites, corn, and wine, and, in later times, incenſe alſo, were firſt offered to *Janus*; that the *doors* or *entrances* to private houſes were called *Januæ*; and any pervious paſſage, or thoroughfare, in the plural number, *Jani*, or *with two beginnings*; that he was repreſented holding a rod, as guardian of ways, and a key, as *opening* not gates only, but *all important works and affairs* of mankind; that he was thought to preſide over the morning, or *beginning of day*; that, although the *Roman* year began regularly

Vol. I
P. 226 श्रीगणेशायनमः GANESA

Vol I
P. 249 कर्पूरगौरंकरुणावतारं ISWARA

regularly with *March*, yet the eleventh month, named *Januarius*, was conſidered as *firſt* of the twelve, whence the whole year was ſuppoſed to be under his guidance, and opened with great ſolemnity by the conſuls inaugurated in his fane, where his ſtatue was decorated on that occaſion with freſh laurel; and, for the ſame reaſon, a ſolemn denunciation of war, than which there can hardly be a more momentous national act, was made by the military conſul's opening the gates of his temple with all the pomp of his magiſtracy. The twelve altars and twelve chapels of *Janus* might either denote, according to the general opinion, that he leads and governs twelve months, or that, as he ſays of himſelf in *Ovid*, all entrance and acceſs muſt be made through him to the principal Gods, who were, to a proverb, of the ſame number. We may add, that *Janus* was imagined to preſide over infants at their birth, on the *beginning* of life.

The *Indian* Divinity has preciſely the ſame character; all ſacrifices and religious ceremonies, all addreſſes even to ſuperior Gods, all ſerious compoſitions in writing, and all worldly affairs of moment, are begun by pious *Hindus* with an invocation of *Ganéſa;* a word compoſed of *iſa*, the *governor* or *leader*, and *gana*, or *a company* of deities, *nine* of which companies are enumerated in the *Amarcóſh*. Inſtances of opening buſineſs auſpiciouſly by an ejaculation to the *Janus* of *India* (if the lines of reſemblance here traced will juſtify me in ſo calling him) might be multiplied with eaſe. Few books are begun without the words "*ſaluta ion to Ganés;*" and he is firſt invoked by the *Bráhmans*, who conduct the trial by ordeal, or perform the ceremony of the *hóma*, or ſacrifice to fire. M. *Sonnerat* repreſents him as highly revered on the coaſt of *Coromandel;* "where the *Indians*," he ſays, "would not on any account build a houſe, with-"out having placed on the ground an image of this "deity;

" deity, which they ſprinkle with oil, and adorn every " day with flowers: they ſet up his figure in all their " temples, in the ſtreets, in the high roads, and in open " plains at the foot of ſome tree; ſo that perſons of all " ranks may invoke him, before they undertake any " buſineſs; and travellers worſhip him, before they pro- " ceed on their journey." To this I may add, from my own obſervation, that in the commodious and uſeful town which now riſes at *Dharmáranya* or *Gayà*, under the auſpices of the active and benevolent *Thomas Law*, Eſq. collector of *Rotas*, every new-built houſe, agreeably to an immemorial uſage of the *Hindus*, has the name of *Ganéſa* ſuperſcribed on its door; and in the old town, his image is placed over the gates of the temples.

We come now to *Saturn*, the oldeſt of the Pagan Gods, of whoſe office and actions much is recorded. The jargon of his being the ſon of Earth and Heaven, who was the ſon of the Sky and the Day, is purely a confeſſion of ignorance who were his parents, or who his predeceſſors; and there appears more ſenſe in the tradition ſaid to be mentioned by the inquiſitive and well-informed *Plato*, " that both *Saturn*, or *Time*, and " his conſort *Cybele*, or the *Earth*, together with their " attendants, were the children of *Ocean* and *Thetis*; " or, in leſs poetical language, ſprang from the waters of " the great deep." *Ceres*, the goddeſs of harveſts, was, it ſeems, their daughter; and *Virgil* deſcribes " the " mother and nurſe of all as crowned with turrets, in " a car drawn by lions, and exulting in her hundred " grandſons, all divine, all inhabiting ſplendid celeſ- " tial manſions." As the God of Time, or rather as *Time* itſelf perſonified, *Saturn* was uſually painted by the heathens holding a ſcythe in one hand, and, in the other, a ſnake with its tail in its mouth, the ſymbol of perpetual cycles and revolutions of ages: he was often repreſented

repreſented in the act of devouring years, in the form of children; and ſometimes encircled by the ſeaſons, appearing like boys and girls. By the *Latins* he was named *Saturnus*: and the moſt ingenious etymology of that word is given by *Feſtus* the grammarian, who traces it, by a learned analogy to many ſimilar names, *à ſatu*, from planting; becauſe, when he reigned in *Italy*, he introduced and improved agriculture: but his diſtinguiſhing character, which explains, indeed, all his other titles and functions, was expreſſed allegorically by the ſtern of a ſhip or galley, on the reverſe of his ancient coins; for which *Ovid* aſſigns a very unſatisfactory reaſon, "becauſe the divine ſtranger arrived "in a ſhip on the *Italian* coaſt;" as if he could have been expected on horſeback, or hovering through the air.

The account, quoted by *Pomey* from *Alexander Polyhiſtor*, caſts a clearer light, if it really came from genuine antiquity, on the whole tale of *Saturn*; "that he "predicted an extraordinary fall of rain, and ordered "the conſtruction of a veſſel, in which it was neceſſary "to ſecure men, beaſts, birds, and reptiles, from a ge-"neral inundation."

Now it ſeems not eaſy to take a cool review of all theſe teſtimonies concerning the birth, kindred, offſpring, character, occupations, and entire life, of *Saturn*, without aſſenting to the opinion of *Bochart*, or admitting it at leaſt to be highly probable, that the fable was raiſed on the true hiſtory of *Noah*; from whoſe flood a new period of *time* was computed, and a new ſeries of ages may be ſaid to have ſprung; who roſe freſh, and, as it were, newly born from the waves; whoſe wife was, in fact, the univerſal mother; and, that the earth might ſoon be repeopled, was early bleſſed with numerous and flouriſhing

flouriſhing deſcendants: if we produce, therefore, an *Indian* king of divine birth, eminent for his piety and beneficence, whoſe ſtory ſeems evidently to be that of *Noah* diſguiſed by *Aſiatick* fiction, we may ſafely offer a conjecture, that he was alſo the ſame perſonage with *Saturn*. This was *Menu*, or *Satyavrata*, whoſe patronymick name was *Vaivaſwata*, or Child of the *Sun*; and whom the *Indians* not only believed to have reigned over the whole world in the earlieſt age of their chronology, but to have reſided in the country of *Dravira*, on the coaſt of the Eaſtern *Indian* Peninſula: the following narrative of the principal event in his life I have literally tranſlated from the *Bhágavat*; and it is the ſubject of the firſt *Purána*, entitled that of the *Matſya*, or *Fiſh*.

"Deſiring the preſervation of herds, and of *Bráhmans*, "of genii, and virtuous men, of the *Védas*, of law, and "of precious things, the Lord of the Univerſe aſſumes "many bodily ſhapes; but though he pervades, like "the air, a variety of beings, yet he is himſelf unva-"ried, ſince he has no quality ſubject to change. At "the cloſe of the laſt *Calpa*, there was a general de-"ſtruction occaſioned by the ſleep of *Brahmá*; whence "his creatures in different worlds were drowned in a "vaſt ocean. *Brahmá*, being inclined to ſlumber, de-"ſiring a repoſe after a lapſe of ages, the ſtrong demon "*Hayagríva* came near him, and ſtole the *Védas*, which "had flowed from his lips. When *Heri*, the Preſerver "of the Univerſe, diſcovered this deed of the Prince of "*Dánavas*, he took the ſhape of a minute fiſh, called "*ſaphari*. A holy king, named *Satyavrata*, then "reigned; a ſervant of the ſpirit, which moved on the "waves, and ſo devout, that water was his only ſuſte-"nance. He was the child of the Sun, and, in the "preſent *Calpa*, is inveſted by *Naráyan* in the office of "*Menu*, by the name of *Sráddhadéva*, or the God of "Obſequies. One day, as he was making a libation to

"the

" the river *Critamálà*, and held water in the palm of his
" hand, he perceived a ſmall fiſh moving in it. The
" king of *Dravira* immediately dropped the fiſh into
" the river, together with the water which he had taken
" from it; when the *ſap'harì* thus pathetically addreſſed
" the benevolent monarch: " How canſt thou, O king,
" who ſhoweſt affection to the oppreſſed, leave me in
" this river-water, where I am too weak to reſiſt the
" monſters of the ſtream, who fill me with dread?"
" He, not knowing who had aſſumed the form of a fiſh,
" applied his mind to the preſervation of the *ſap'harì*,
" both from good-nature, and from regard to his own
" ſoul; and, having heard its very ſuppliant addreſs,
" he kindly placed it under his protection in a ſmall vaſe
" full of water; but, in a ſingle night, its bulk was ſo
" increaſed, that it could not be contained in the jar,
" and thus again addreſſed the illuſtrious Prince: " I
" am not pleaſed with living miſerably in this little vaſe,
" make me a large manſion, where I may dwell in com-
" fort." The king, removing it thence, placed it in
" the water of a ciſtern; but it grew three cubits in leſs
" than fifty minutes, and ſaid, " O king, it pleaſes me
" not to ſtay vainly in this narrow ciſtern: ſince thou
" haſt granted me an aſylum, give me a ſpacious habi-
" tation." He then removed it, and placed it in a pool,
" where, having ample ſpace around its body, it became
" a fiſh of conſiderable ſize. " This abode, O king, is
" not convenient for me, who muſt ſwim at large in the
" waters: exert thyſelf for my ſafety; and remove me
" to a deep lake." Thus addreſſed, the pious monarch
" threw the ſuppliant into a lake, and, when it grew of
" equal bulk with that piece of water, he caſt the vaſt
" fiſh into the ſea. When the fiſh was thrown into the
" waves, he thus again ſpoke to *Satyavrata*: " Here the
" horned ſharks, and other monſters of great ſtrength,
" will devour me; thou ſhouldeſt not, O valiant man,
" leave me in this ocean." Thus repeatedly deluded
" by the fiſh, who had addreſſed him with gentle words,
" the king ſaid, " Who art thou, that beguileſt me in

" that

" that aſſumed ſhape? Never before have I ſeen or heard
" of ſo prodigious an inhabitant of the waters, who,
" like thee, haſt filled up, in a ſingle day, a lake an
" hundred leagues in circumference. Surely, thou art
" *Bhágavat*, who appeareſt before me; the great *Heri*,
" whoſe dwelling was on the waves; and who now, in
" compaſſion to thy ſervants, beareſt the form of the
" natives of the deep. Salutation and praiſe to thee, O
" firſt male, the lord of creation, of preſervation, of
" deſtruction! Thou art the higheſt object, O ſupreme
" ruler, of us thy adorers, who piouſly ſeek thee. All
" thy deluſive deſcents in this world give exiſtence to
" various beings: yet I am anxious to know for what
" cauſe that ſhape has been aſſumed by thee. Let me
" not, O lotos-eyed, approach in vain the feet of a
" deity, whoſe perfect benevolence has been extended
" to all; when thou haſt ſhown us, to our amazement,
" the appearance of other bodies, not in reality exiſting,
" but ſucceſſively exhibited." The Lord of the Univerſe,
" loving the pious man, who thus implored him, and
" intending to preſerve him from the ſea of deſtruction,
" cauſed by the depravity of the age, thus told him how
" he was to act. " In ſeven days from the preſent time,
" O though tamer of enemies, the three worlds will be
" plunged in an ocean of death; but, in the midſt of
" the deſtroying waves, a large veſſel, ſent by me for
" thy uſe, ſhall ſtand before thee. Then ſhalt thou take
" all medicinal herbs, all the variety of ſeeds; and,
" accompanied by ſeven ſaints, encircled by pairs of all
" brute animals, thou ſhalt enter the ſpacious ark, and
" continue in it, ſecure from the flood, on one immenſe
" ocean without light, except the radiance of thy holy
" companions. When the ſhip ſhall be agitated by an
" impetuous wind, thou ſhalt faſten it with a large ſea-
" ſerpent on my horn; for I will be near thee, draw-
" ing the veſſel, with thee and thy attendants. I will
" remain on the ocean, O chief of men, until a night
" of *Brahmá* ſhall be completely ended. Thou ſhalt
" then

" then know my true greatneſs, rightly named the Su-
" preme Godhead: by my favour, all thy queſtions ſhall
" be anſwered, and thy mind abundantly inſtructed."
" *Heri*, having thus directed the monarch, diſappeared;
" and *Satyavrata* humbly waited for the time which
" the ruler of our ſenſes had appointed. The pious
" king, having ſcattered toward the eaſt the pointed
" blades of the graſs *darbha*, and turning his face to-
" ward the north, ſate meditating on the feet of the
" God who had borne the form of a fiſh. The ſea,
" overwhelming its ſhores, deluged the whole earth;
" and it was ſoon perceived to be augmented by ſhowers
" from immenſe clouds. He, ſtill meditating on the
" command of *Bhágavat*, ſaw the veſſel advancing, and
" entered it with the chiefs of *Bráhmans*, having carried
" into it the medicinal creepers, and conformed to the
" directions of *Heri*. The ſaints thus addreſſed him:
" O king, meditate on *Céſava*; who will, ſurely, deli-
" liver us from this danger, and grant us proſperity."
" The God, being invoked by the monarch, appeared
" again diſtinctly on the vaſt ocean in the form of a fiſh,
" blazing like gold, extending a million of leagues, with
" one ſtupendous horn; on which the king, as he had
" before been commanded by *Heri*, tied the ſhip with a
" cable made of a vaſt ſerpent, and, happy in his preſer-
" vation, ſtood praiſing the deſtroyer of *Madhu*. When
" the monarch had finiſhed his hymn, the primeval male,
" *Bhágavat*, who watched for his ſafety on the greater ex-
" panſe of water, ſpoke aloud to his own divine eſſence,
" pronouncing a ſacred *Purána*, which contained the
" rules of the *Sánc'hya* philoſophy: but it was an infinite
" myſtery to be concealed within the breaſt of *Satya-
" vrata*; who, ſitting in the veſſel with the ſaints, heard
" the principle of the ſoul, the External Being, pro-
" claimed by the preſerving power. Then *Heri*, riſing
" together with *Brahmá*, from the deſtructive deluge,
" which was abated, ſlew the demon *Hayagríva*, and
" recovered the ſacred books. *Satyavrata*, inſtructed

" in all divine and human knowledge, was appointed " in the preſent *Calpa*, by the favour of *Viſhnu*, the " ſeventh *Menu*, ſurnamed *Vaivaſwata*: but the ap- " pearance of a horned fiſh to the religious monarch " was *Máyâ*, or deluſion; and he who ſhall devoutly " hear this important allegorical narrative, will be de- " livered from the bondage of ſin."

This epitome of the firſt *Indian* hiſtory that is now extant, appears to me very curious and very important; for the ſtory, though whimſically dreſſed up in the form of an allegory, ſeems to prove a primeval tradition in this country of the *univerſal deluge* deſcribed by MOSES, and fixes conſequently the *time* when the genuine *Hindu* chronology actually begins. We find, it is true, in the *Purán*, from which the narrative is extracted, *another deluge*, which happened towards the cloſe of the *third* age, when *Yudhiſt'hir* was labouring under the perſecution of his inveterate foe *Duryódhan*; and when *Chriſhna*, who had recently become incarnate for the purpoſe of ſuccouring the pious, and deſtroying the wicked, was performing wonders in the country of *Mat'hurà*; but the ſecond flood was merely *local*, and intended only to affect the people of *Vraja*: they, it ſeems, had offended *Indra*, the God of the firmament, by their enthuſiaſtick adoration of the wonderful child, " who " lifted up the mountain *Góverdhena*, as if it had been " a flower; and, by ſheltering all the herdſmen and " ſhepherdeſſes from the ſtorm, convinced *Indra* of " his ſupremacy."

That the *Satya*, or (if we may venture ſo to call it) the *Saturnian* age was, in truth, the age of the *general* flood, will appear from a cloſe examination of the ten *Avatárs*, or *deſcents* of the deity, in his capacity of preſerver; ſince of the four, which are declared to have happened in the *Satya yug*, the *three firſt* apparently relate to ſome ſtupendous convulſion of our globe from

the

the fountains of the deep; and the fourth exhibits the miraculous puniſhment of pride and impiety. Firſt, as we have ſhown, there was, in the opinion of the *Hindus*, an interpoſition of Providence to preſerve a devout perſon and his family (for all the *Pandits* agree, that his wife, though not named, muſt be underſtood to have been ſaved with him) from an inundation, by which all the wicked were deſtroyed: next, the power of the deity deſcends in the form of a *boar*, the ſymbol of ſtrength, to draw up and ſupport on his tuſks the whole earth, which had been ſunk beneath the ocean: thirdly, the ſame power is repreſented as a *tortoiſe* ſuſtaining the globe, which had been convulſed by the violent aſſaults of demons; while the Gods churned the ſea with the mountain *Mandar*, and forced it to diſgorge the ſacred things and animals, together with the water of life, which it had ſwallowed. Theſe three ſtories relate, I think, to the ſame event, ſhadowed by a moral, a metaphyſical, and an aſtronomical, allegory: and all three ſeem connected with the hieroglyphical ſculptures of the old *Egyptians*. The fourth *Avatár* was a *lion* iſſuing from a burſting column of marble to devour a blaſpheming monarch, who would otherwiſe have ſlain his religious ſon; and of the remaining ſix, not one has the leaſt relation to a deluge. The three which are aſcribed to the *Tréțá yug*, when tyranny and irreligion are ſaid to have been introduced, were ordained for the overthrow of tyrants, or their natural types, giants with a thouſand arms, formed for the moſt extenſive oppreſſion: and, in the *Dwâpar yug*, the incarnation of *Criſhna* was partly for a ſimilar purpoſe, and partly with a view to thin the world of unjuſt and impious men, who had multiplied in that age, and began to ſwarm on the approach of the *Cali yug*, or the age of *contention* and baſeneſs. As to *Buddha*, he ſeems to have been a reformer of the doctrines contained in the *Védas*; and though his good-nature led him to cenſure thoſe antient books, becauſe they enjoined ſacrifices of

cattle, yet he is admitted as the ninth *Avatâr* even by the *Bráhmans* of *Cási*, and his praiſes are ſung by the poet *Jayadéva*: his character is in many reſpects very extraordinary; but, as an account of it belongs rather to hiſtory than to mythology, it is reſerved for another diſſertation. The tenth *Avatâr*, we are told, is yet to come, and is expected to appear mounted (like the crowned conqueror in the *Apocalypſe*) on a white horſe, with a cimeter blazing like a comet, to mow down all incorrigible and impenitent offenders who ſhall then be on earth.

Theſe four *Yugs* have ſo apparent an affinity with the *Grecian* and *Roman* ages, that one origin may be naturally aſſigned to both ſyſtems. The firſt in both is diſtinguiſhed as abounding in *gold*, though *Satya* means *truth* and *probity*, which were found, if ever, in the times immediately following ſo tremendous an exertion of the Divine Power as the deſtruction of mankind by a general deluge: the next is characterized by *ſilver*; and the third by *copper*: though their uſual names allude to proportions imagined in each between vice and virtue. The preſent, or *earthen*, age ſeems more properly diſcriminated than by *iron*, is in ancient *Europe*; ſince that metal is not baſer, or leſs uſeful, though more common, in our times, and conſequently leſs precious, than copper; while mere *earth* conveys an idea of the loweſt degradation. We may here obſerve, that the true Hiſtory of the World ſeems obviouſly diviſible into *four* ages or periods; which may be called, firſt, the *Diluvian*, or pureſt age; namely, the times preceding the deluge, and thoſe ſucceeding it till the mad introduction of idolatry at *Babel*: next, the *Patriarchal*, or pure, age; in which, indeed, there were mighty hunters of beaſts and of men, from the riſe of patriarchs in the family of *Sem*, to the ſimultaneous,

ous eſtabliſhment of great empires by the deſcendants of his brother *Hám*: thirdly, the *Moſaick*, or leſs pure, age; from the legation of *Moſes*, and during the time when his ordinances were comparatively well obſerved and uncorrupted: laſtly, the *prophetical*, or *impure*, age, beginning with the vehement warnings given by the prophets to apoſtate kings and degenerate nations, but ſtill ſubſiſting, and to ſubſiſt, until all genuine prophecies ſhall be fully accompliſhed. The duration of the hiſtorical ages muſt needs be very unequal and diſproportionate; while that of the *Indian Yugs* is diſpoſed ſo regularly and artificially, that it cannot be admitted as natural or probable. Men do not become reprobate in a geometrical progreſſion, or at the termination of regular periods; yet ſo well proportioned are the *Yugs*, that even the length of human life is diminiſhed as they advance, from an hundred thouſand years in a ſubdecuple ratio; and, as the number of principal *Avatárs* in each decreaſes arithmetically from four, ſo the number of years in each decreaſes geometrically, and all together conſtitute the extravagant ſum of four million three hundred and twenty thouſand years, which aggregate, multiplied by ſeventy-one, is the period in which every *Menu* is believed to preſide over the world. Such a period, one might conceive, would have ſatisfied *Archetas, the meaſurer of ſea and earth, and the numberer of their ſands*; or *Archimedes*, who invented a notation that was capable of expreſſing the number of them; but the comprehenſive mind of an *Indian* chronologiſt has no limits; and the reigns of fourteen *Menus* are only a ſingle day of *Brahmá*, fifty of which days have elapſed, according to the *Hindus*, from the time of the creation. That all this puerility, as it ſeems at firſt view, may be only an aſtronomical riddle, and allude to the apparent revolution of the fixed ſtars, of which the *Bráhmans* made a myſtery, I readily admit, and am even inclined to believe; but ſo technical an arrangement excludes all idea of ſerious hiſtory. I am ſenſible how much theſe

remarks

remarks will offend the warm advocates for *Indian* antiquity; but we muſt not ſacrifice truth to a baſe fear of giving offence. That the *Vêdas* were actually written before the flood, I ſhall never believe; nor can we infer, from the preceding ſtory, that the learned *Hindus* believe it; for the allegorical ſlumber of *Brahmá*, and the theft of the ſacred books, mean only, in ſimpler language, that *the human race was become corrupt;* but that the *Vêdas* are very ancient, and far older than other *Sanſcrit* compoſitions, I will venture to aſſert from my own examination of them, and a compariſon of their ſtyle with that of the *Puráns* and the *Dherma Sáſtra.* A ſimilar compariſon juſtifies me in pronouncing, that the excellent law-book aſcribed to *Swáyambhuva Menu*, though not even pretended to have been written by him, is more ancient than the *Bhágavat;* but that it was compoſed in the firſt age of the world, the *Bráhmans* would find it hard to perſuade me; and the date which has been aſſigned to it, does not appear in either of the two copies which I poſſeſs, or in any other that has been collated for me: in fact, the ſuppoſed date is comprized in a verſe, which flatly contradicts the work itſelf; for it was not *Menu* who compoſed the ſyſtem of law, by the command of his father *Brahmá*, but a holy perſonage, or demi-god, named *Bhrigu*, who revealed to men what *Menu* had delivered at the requeſt of him, and other ſaints or patriarchs. In the *Mánava Sáſtra*, to conclude this digreſſion, the meaſure is ſo uniform and melodious, and the ſtyle ſo perfectly *Sanſcrit*, or *poliſhed*, that the book muſt be more modern than the ſcriptures of *Moſes*, in which the ſimplicity, or rather nakedneſs, of the *Hebrew* dialect, metre, and ſtyle, muſt convince every unbiaſſed man of their ſuperior antiquity.

I leave etymologiſts, who decide every thing, to decide whether the word *Menu*, or, in the nominative caſe, *Menús*,

Menus, has any connexion with *Minos* the lawgiver, and ſuppoſed ſon of *Jove*. The *Cretans*, according to *Diodorus* of *Sicily*, uſed to feign, that moſt of the great men, who had been deified in return for the benefits which they had conferred on mankind, were born in their iſland; and hence a doubt may be raiſed, whether *Minos* was really a *Cretan*. The *Indian* legiſlator was the firſt, not the ſeventh, *Menu*, or *Satyavrata*, whom I ſuppoſe to be the *Saturn* of *Italy*. Part of *Saturn's* character, indeed, was that of a lawgiver:

Qui genus indocile ac diſperſum montibus altis
Compoſuit *legeſque dedit:*

And we may ſuſpect that all the fourteen *Menus* are reducible to one, who was called *Nub* by the *Arabs*, and probably by the *Hebrews;* though we have diſguiſed his name by an improper pronunciation of it. Some near relation between the ſeventh *Menu* and the Grecian *Minos*, may be inferred from the ſingular character of the *Hindu* god *Yama*, who was alſo a child of the Sun, and thence named *Vaivaſwata*. He had too the ſame title with his brother, *Sráddhadéva*. Another of his titles was *Dhermarája*, or *King of Juſtice;* and a third, *Pitripeti*, or *Lord of the Patriarchs;* but he is chiefly diſtinguiſhed as *judge of departed ſouls;* for the *Hindus* believe, that, when a ſoul leaves its body, it immediately repairs to *Yamapur*, or the city of *Yama*, where it receives a juſt ſentence from him, and either aſcends to *Swerga*, or the firſt heaven; or is driven down to *Narac*, the region of ſerpents; or aſſumes on earth the form of ſome animal, unleſs its offence had been ſuch, that it ought to be condemned to a vegetable, or even to a mineral,

mineral, priſon. Another of his names is very remarkable; I mean that of *Cála*, or *time*, the idea of which is intimately blended with the characters of *Saturn* and of *Noah*; for the name *Cronos* has a manifeſt affinity with the word *chronos*; and a learned follower of *Zerátuſht* aſſures me, that, in the books which the *Behdíns* hold ſacred, mention is made of an *univerſal inundation*, there named the deluge of *Time*.

It having been occaſionally obſerved, that *Ceres* was the poetical daughter of *Saturn*, we cannot cloſe this head without adding, that the *Hindus* alſo have their *Goddeſs of Abundance*, whom they uſually call *Lacſhmí*, and whom they conſider as the daughter (not of *Menu*, but) of *Bhrigu*, by whom the firſt code of ſacred ordinances was promulgated. She is alſo named *Pedmá* and *Camalá*, from the ſacred lotos, or *Nymphæa*: but her moſt remarkable name is *Srí*, or, in the firſt caſe, *Srís*, which has a reſemblance to the *Latin*, and means *fortune* or *proſperity*. It may be contended, that although *Lacſhmí* may be figuratively called the *Ceres* of *Hinduſtan*, yet any two or more idolatrous nations, who ſubſiſted by agriculture, might naturally conceive a Deity to preſide over their labours, without having the leaſt intercourſe with each other; but no reaſon appears why two nations ſhould concur in ſuppoſing that Deity to be a female. One, at leaſt, of them would be more likely to imagine that the *Earth* was a goddeſs, and that the God of Abundance rendered her fertile. Beſides, in very ancient temples near *Gayá*, we ſee images of *Lacſhmí*, with full breaſt, and a *cord* twiſted under her arm like a *horn of plenty*, which look very much like the old *Grecian* and *Roman* figures of *Ceres*.

The fable of *Saturn* having been thus analyſed, let us proceed to his deſcendants; and begin, as the Poet adviſes,

Vol. I.
P. 241 देवानामस्मि वासवः INDRA

Vol. I.
P. 247 वित्तेशो यक्षरक्षसाम् CUVERA

adviſes, with *Jupiter*, whoſe ſupremacy, thunder, and libertiniſm, every boy learns from *Ovid*; while his great offices of Creator, Preſerver, and Deſtroyer, are not generally conſidered in the ſyſtems of *European* mythology. The *Romans* had, as we have before obſerved, many *Jupiters*, one of whom was only the *Firmament* perſonified, as *Ennius* clearly expreſſes it:

Aſpice hoc ſublime candens, quem invocant omnes
Jovem.

This *Jupiter* or *Dieſpiter* is the *Indian* God of the viſible heavens, called *Indra*, or the *King*; and *Diveſpetir*, or *Lord of the Sky*; who has alſo the character of the Roman *Genius*, or chief of the Good Spirits; but moſt of his epithets in *Sanſcrit* are the ſame with thoſe of the Ennian *Jove*. His conſort is named *Sachí*; his celeſtial city, *Amarávatì*; his palace, *Vaijayanta*; his garden, *Nandana*; his chief elephant, *Airávat*; his charioteer, *Mátali*; and his weapon, *Vajra*, or the thunderbolt: he is the regent of winds and ſhowers; and though the Eaſt is peculiarly under his care, yet his *Olympus* is *Méru*, or the north pole, allegorically repreſented as a mountain of gold and gems. With all his power he is conſidered as a ſubordinate Deity, and far inferior to the *Indian* Triad, *Brahmá*, *Viſhnu*, and *Mahâdeva*, or *Siva*, who are three *forms* of one and the ſame Godhead: thus the principal divinity of the *Greeks* and *Latians*, whom they called *Zeus* and *Jupiter*, with irregular inflexions *Dios* and *Jovis*, was not merely *Fulminator*, the Thunderer, but, like the deſtroying power of *India*, *Magnus Divus*, *Ultor*, *Genitor*; like the preſerving power, *Conſervator*, *Soter*, *Opitulus*, *Altor*, *Ruminus*; and like the creating power, the *Giver of Life*; an attribute which I mention here on

on the authority of *Cornutus*, a conſummate maſter of mythological learning. We are adviſed by *Plato* himſelf, to ſearch for the roots of *Greek* words in ſome barbarous, that is, foreign ſoil; but, ſince I look upon etymological conjectures as a weak baſis for hiſtorical inquiries, I hardly dare ſuggeſt, that *Zev*, *Siv*, and *Jov*, are the ſame ſyllable differently pronounced. It muſt, however, be admitted, that the *Greeks* having no palatial *ſigma*, like that of the *Indians*, might have expreſſed it by their *zéta*, and that the initial letters of *zugon* and *jugum* are (as the inſtance proves) eaſily interchangeable.

Let us now deſcend, from theſe general and introductory remarks, to ſome particular obſervations on the reſemblance of *Zeus*, or *Jupiter*, to the triple divinity *Viſhnu*, *Siva*, *Brahmá*; for that is the order in which they are expreſſed by the letters A, U, and M, which coaleſce, and form the myſtical word O'M; a word which never eſcapes the lips of a pious *Hindu*, who meditates on it in ſilence. Whether the *Egytian* ON, which is commonly ſuppoſed to mean the Sun, be the *Sanſcrit* monoſyllable, I leave others to determine. It muſt always be remembered, that the learned *Indians*, as they are inſtructed by their own books, in truth, acknowledge only One Supreme Being, whom they call *Brahme*, or *the Great One*, in the neuter gender: they believe his eſſence to be infinitely removed from the comprehenſion of any mind but his own; and they ſuppoſe him to manifeſt his power by the operation of his divine ſpirit, whom they name *Viſhnu*, the *Pervader*, and *Nárâyan*, or *Moving on the Waters*, both in the maſculine gender, whence he is often denominated the *Firſt Male*; and by this power they believe that the whole order of nature is preſerved and ſupported: but the *Védántis*, unable to form a diſtinct idea of brute matter independent of mind, or to conceive that the work

work of Supreme Goodneſs was left a moment to itſelf, imagine that the Deity is ever preſent to his work, and conſtantly ſupports a ſeries of perceptions, which, in one ſenſe, they call *illuſory*; though they cannot but admit the *reality* of all created forms, as far as the happineſs of creatures can be affected by them. When they conſider the Divine Power exerted in *creating*, or in giving exiſtence to that which exiſted not before, they call the Deity *Brahmá* in the maſculine gender alſo; and when they view him in the light of *Deſtroyer*, or rather *Changer* of forms, they give him a thouſand names, of which *Sivà*, *Iſa*, or *Iſwara*, *Rudra*, *Hará*, *Sambhu*, and *Mahádéva*, or *Mahéſa*, are the moſt common. The firſt operations of theſe three *Powers* are variouſly deſcribed in the different *Puránas* by a number of allegories, and from them we may deduce the *Ionian* Philoſophy of *primeval water*, the doctrine of the Mundane Egg, and the veneration paid to the *Nymphæ*, or *Lotos*, which was anciently revered in *Egypt*, as it is at preſent in *Hinduſtán*, *Tibet*, and *Népal*. The *Tibetians* are ſaid to embelliſh their temples and altars with it: and a native of *Népal* made proſtrations before it on entering my ſtudy, where the fine plant and beautiful flowers lay for examination. Mr. *Holwel*, in explaining his firſt plate, ſuppoſes *Brahmá* to be floating on a leaf of *betel* in the midſt of the abyſs; but it was manifeſtly intended by a bad painter for a lotos leaf, or for that of the *Indian* fig-tree; nor is the ſpecies of pepper, known in *Bengal* by the name of *Támbúla*, and on the Coaſt of *Malabar* by that of *betel*, held ſacred, as he aſſerts, by the *Hindus*, or neceſſarily cultivated under the inſpection of *Bráhmans*; though, as the vines are tender, all the plantations of them are carefully ſecured, and ought to be cultivated by a particular tribe of *Súdras*, who are thence called *Támbúlis*.

That *water* was the primitive element, and firſt work of the Creative Power, is the uniform opinion of the *Indian*-

Indian philoſophers; but, as they give ſo particular an account of the general deluge, and of the creation, it can never be admitted that their whole ſyſtem aroſe from traditions concerning the flood only, and muſt appear indubitable, that their doctrine is in part borrowed from the opening of *Birásìt*, or *Geneſis*, than which a ſublimer paſſage, from the firſt word to the laſt, never flowed, or will flow, from any human pen: "*In* "*the beginning* God created the heavens and the earth. "—And the earth was void and waſte, and darkneſs "was on the face of the deep, and the Spirit of God "*moved upon* the face of the waters: and God ſaid, "*Let light be*—and *Light was.*" The ſublimity of this paſſage is conſiderably diminiſhed by the *Indian* paraphraſe of it, with which *Menu*, the ſon of *Brahmá*, begins his addreſs to the ſages, who conſulted him on the formation of the univerſe. "This world (ſays he) "was all darkneſs, undiſcernible, undiſtinguiſhable, al- "together as in profound ſleep: till the ſelf-exiſtent in- "viſible God, making it manifeſt with five elements, "and other glorious forms, perfectly diſpelled the gloom. "He, deſiring to raiſe up various creatures by an ema- "nation from his own glory, firſt created the *waters*, "and impreſſed them with a power of motion: by "that power was produced a golden egg, blazing like "a thouſand ſuns, in which was born *Brahmá*, ſelf- "exiſting, the great parent of all rational beings. The "waters are called *nárà*, ſince they are the offſpring "of *Nera*, or *Iſwara*; and thence was *Nárâyana* "named, becauſe his firſt *ayana*, or *moving*, was on "them.

"That which is, the inviſible cauſe, eternal, ſelf- "exiſting, but unperceived, becoming maſculine *from* "*neuter*, is celebrated among all creatures by the name "of *Brahmá*. That God, having dwelled in the Egg, "through revolving years, Himſelf meditating on him- "ſelf, divided it into two equal parts; and from thoſe

"halves

Vol. I.
P. 243 धाताहं विश्वतामुखः BRAHMA

Vol. I
P. 244 आदित्यानामहविष्णुः VISHNU

" halves formed the heavens and the earth, placing in " the midſt the ſubtil ether, the eight points of the " world, and the permanent receptacle of waters."

To this curious deſcription, with which the *Mánava Sáſtra* begins, I cannot refrain from ſubjoining the four verſes, which are the text of the *Bhágavat*, and are believed to have been pronounced by the Supreme Being to *Brahmá*: the following verſion is moſt ſcrupulouſly literal.*

" Even I was even at firſt, not any other thing; that " which exiſts unperceived; ſupreme: afterwards *I am* " *that which is*: and he who muſt remain, am I.

" Except the *Firſt Cauſe*, whatever may appear, and " may not appear, in the mind, know that to be the " mind's *Máyá*, or *Deluſion*, as light, as darkneſs.

" As the great elements are in various beings, enter- " ing, yet not entering, (that is, pervading, not deſtroy- " ing,) thus am I in them, yet not in them.

" Even thus far may inquiry be made by him who " ſeeks to know the principle of mind, in union and " ſeparation, which muſt be *every where always*."

Wild

* See the Original, p. 33. Plate IV.

Wild and obſcure as theſe ancient verſes muſt appear in a naked verbal tranſlation, it will perhaps be thought by many, that the poetry or mythology of *Greece* and *Italy* afford no conceptions more awfully magnificent: yet the brevity and ſimplicity of the *Moſaick* diction are unequalled.

As to the creation of the world, in the opinion of the *Romans*, *Ovid*, who might naturally have been expected to deſcribe it with learning and elegance, leaves us wholly in the dark, *which of the Gods was the actor in it.* Other mythologiſts are more explicit; and we may rely on the authority of *Cornutus*, that the old *European* heathens conſidered *Jove* (not the ſon of *Saturn*, but of the *Ether*, that is, of an unknown parent) as the great *Life-giver*, and *Father of Gods and Men*: to which may be added the *Orphean* doctrine, preſerved by *Proclus*, that "the abyſs and empyreum, the earth "and ſea, the Gods and Goddeſſes, were produced by "*Zeus*, or *Jupiter*." In this character he correſponds with *Brahmá*; and, perhaps, with that God of the *Babylonians*, (if we can rely on the accounts of their ancient religion,) who, like *Brahmá*, reduced the univerſe to order, and, like *Brahmá*, *loſt his head*, with the blood of which new animals were inſtantly formed. I allude to the common ſtory, the meaning of which I cannot diſcover, that *Brahmá* had five heads, till one of them was cut off by *Nárayăn*.

That, in another capacity, *Jove* was the *Helper* and *Supporter* of all, we may collect from his old *Latin* epithets, and from *Cicero*, who informs us, that his uſual name is a contraction of *Juvans Pater*; an etymology which ſhews the idea entertained of his character, though we may have ſome doubt of its accuracy. *Callimachus*, we know, addreſſes him as *the beſtower of all good, and of ſecurity from grief*; and, *ſince neither wealth without virtue, not virtue without wealth, give*

complete happineſs, he prays, like a wiſe poet, for both: An *Indian* prayer for riches would be directed to *Lacſhmí*, the wife of *Viſhnu*, ſince the *Hindu* goddeſſes are believed to be the *powers* of their reſpective lords.

As to *Cuvéra*, the *Indian Plutus*, one of whoſe names in *Paulaſtya*, he is revered, indeed, as a magnificent Deity, reſiding in the palace of *Alacá*, or borne through the ſky in a ſplendid car, named *Puſhpaca*, but is manifeſtly ſubordinate, like the other ſeven Genii, to three principal Gods, or rather to the principal God conſidered in three capacities. As the ſoul of the world, or the pervading *mind*, ſo finely deſcribed by *Virgil*, we ſee *Jove* repreſented by ſeveral *Roman* poets; and with great ſublimity by *Lucan* in the known ſpeech of *Cato* concerning the *Ammonian* oracle: "*Jupiter* "is, wherever we look, wherever we move." This is preciſely the *Indian* idea of *Viſhnu*, according to the four verſes above exhibited: not that the *Bráhmans* imagine their male Divinity to be the *divine Eſſence* of the Great One, which they declare to be wholly incomprehenſible; but, ſince the power of *preſerving* created things by a ſuperintending providence, belongs eminently to the Godhead, they hold that power to exiſt tranſcendently in the *preſerving* member of the Triad, whom they ſuppoſe to be *every where always*; not in ſubſtance, but in ſpirit and energy: here, however, I ſpeak of the *Vaiſhnavas*; for the *Saivas* aſcribe a ſort of pre-eminence to *Siva*, whoſe attributes are now to be conciſely examined.

It was in the capacity of Avenger and Deſtroyer, that *Jove* encountered and overthrew the *Titans* and Giants, whom *Typhon*, *Briareus*, *Tityus*, and the reſt of their fraternity, led againſt the God of *Olympus*; to whom an eagle brought *lightning* and *thunderbolts* during

during the warfare. Thus, in a ſimilar conteſt between *Siva* and the *Daityas*, or children of *Diti*, who frequently rebelled againſt heaven, *Brahmá* is believed to have preſented the God of Deſtruction with *fiery ſhaſts*. One of the many poems, entitled *Rámáyan*, the laſt book of which has been tranſlated into *Italian*, contains an extraordinary dialogue between the crow *Bhuſhunda*, and a rational eagle, named *Garúda*, who is often painted with the face of a beautiful youth, and the body of an imaginary bird; and one of the eighteen *Puránas* bears his name, and compriſes his whole hiſtory. *M. Sonnerat* informs us, that *Viſhnu* is repreſented in ſome places riding on the *Garúda*, which he ſuppoſes to be the *Pondicheri* eagle of *Briſſon*, eſpecially as the *Bráhmans* of the Coaſt highly venerate that bird, and provide food for numbers of them at ſtated hours. I rather conceive the *Garúda* to be a fabulous bird; but agree with him, that the *Hindu* God, who rides on it, reſembles the ancient *Jupiter*. In the old temples at *Gayá*, *Viſhnu* is either mounted on this poetical bird, or attended by it, together with a little page; but, leſt an etymologiſt ſhould find *Ganymed* in *Garud*, I muſt obſerve that the *Sanſcrit* word is pronounced *Garura*; though I admit that the *Grecian* and *Indian* ſtories of the celeſtial bird and the page appear to have ſome reſemblance. As the *Olympian Jupiter* fixed his court, and held his councils, on a lofty and brilliant mountain, ſo the appropriated ſeat of *Mahádéva*, whom the *Saivas* conſider as the Chief of the Deities, was mount *Cailáſa*, every ſplinter of whoſe rocks was an ineſtimable gem. His terreſtrial haunts are the ſnowy hills of *Himálaya*, or that branch of them to the Eaſt of the *Brahmaputra*, which has the name of *Chandraſic'hara*, or the *Mountain of the Moon*. When, after all theſe circumſtances, we learn that *Siva* is believed to have *three* eyes, whence he is named alſo *Triléchan*, and know from *Pauſanias*, not only that *Triophthalmos* was an epithet of *Zeus*, but that a ſtatue of him had been found ſo early as the

the taking of *Troy*, with *a third eye in his forehead*, as we ſee him repreſented by the *Hindus*, we muſt conclude, that the identity of the two Gods falls little ſhort of being demonſtrated.

In the character of *Deſtroyer* alſo, we may look upon this *Indian* Deity as correſponding with the Stygian *Jove*, or *Pluto*; eſpecially ſince *Cáli*, or *Time*, in the feminine gender, is a name of his conſort, who will appear hereafter to be *Proſerpine*. Indeed, if we can rely on a *Perſian* tranſlation of the *Bhágavat*, (for the original is not yet in my poſſeſſion,) the Sovereign of *Pâtála*, or the *Infernal Regions*, is the *King of Serpents*, named *Séſhanága*; for *Criſhna* is there ſaid to have deſcended with his favourite *Arjun* to the ſeat of that formidable divinity, from whom he inſtantly obtained the favour which he requeſted, that the ſouls of a *Bráhman's* ſix ſons, who had been ſlain in battle, might reanimate their reſpective bodies; and *Séſhanága* is thus deſcribed. "He had a "gorgeous appearance, with a thouſand heads, and on "each of them a crown ſet with reſplendent gems, one "of which was larger and brighter than the reſt; his "eyes gleamed like flaming torches; but his neck, his "tongues, and his body, were black; the ſkirts of his "habiliment were yellow, and a ſparkling jewel hung "in every one of his ears; his arms were extended, and "adorned with rich bracelets; and his hands bore the "holy ſhell, the radiated weapon, the mace for war, "and the lotos." Thus *Pluto* was often exhibited in painting and ſculpture, with a diadem and ſceptre; but himſelf and his equipage were of the blackeſt ſhade.

There is yet another attribute of *Mahâdéva*, by which he is too viſibly diſtinguiſhed in the drawings and

temples of *Bengal*. To deſtroy, according to the *Védânti's* of *India*, the *Súfi's* of *Perſia*, and many philoſophers of our *European* ſchools, is only to *generate* and *reproduce* in another form. Hence the God of *Deſtruction* is holden in this country to preſide over *Generation*; as a ſymbol of which he rides on a *white bull*. Can we doubt that the loves and feats of *Jupiter Genitor*, (not forgetting the *white bull* of *Europa*,) and his extraordinary title of *Lapis*, for which no ſatisfactory reaſon is commonly given, have a connection with the *Indian* Philoſophy and Mythology? As to the deity of *Lampſacus*, he was originally a mere ſcare-crow, and ought not to have a place in any mythological ſyſtem; and, in regard to *Bacchus*, the God of *Vintage*, (between whoſe acts and thoſe of *Jupiter*, we find, as *Bacon* obſerves, a wonderful affinity,) his *Ithyphallick* images, meaſures, and ceremonies, alluded probably to the ſuppoſed relation of Love and Wine; unleſs we believe them to have belonged originally to *Siva*; one of whoſe names is *Vágís*, or *Bágís*, and to have been afterwards improperly applied. Though, in an Eſſay on the Gods of *India*, where the *Brâhmins* are poſitively forbidden to taſte fermented liquors, we can have little to do with *Bacchus*, as God of Wine, who was probably no more than the imaginary Preſident over the vintage in *Italy*, *Greece*, and the Lower *Aſia*; yet we muſt not omit *Surâdévi*, the Goddeſs of Wine, who aroſe, ſay the *Hindus*, from the ocean, when it was churned with the mountain *Mandar*: and this fable ſeems to indicate, that the *Indians* came from a country in which wine was anciently made, and conſidered as a bleſſing; though the dangerous effects of intemperance induced their early legiſlators to prohibit the uſe of all ſpirituous liquors; and it were much to be wiſhed that ſo wiſe a law had never been violated.

Here may be introduced the *Jupiter Marinus*, or *Neptune*, of the *Romans*, as reſembling *Mahâdéva* in his

Vol I.
P. 251

वरुणोवारसामहम् VARUNA

Vol I
P. 252

सेनानीनामहंस्कंदः CARTICEYA

his *generative* character; eſpecially as the *Hindu* God is the huſband of *Bhavání*, whoſe relation to the *waters* is evidently marked by her image being reſtored to them at the concluſion of her great feſtival called *Durgótſava*. She is known alſo to have attributes exactly ſimilar to thoſe of *Venus Marina*, whoſe birth from the ſea-foam, and ſplendid riſe from the conch, in which ſhe had been cradled, have afforded ſo many charming ſubjects to ancient and modern artiſts; and it is very remarkable, that the *Rembhá* of *Indra's* court, who ſeems to correſpond with the popular *Venus*, or Goddeſs of Beauty, was produced, according to the *Indian* fabuliſts, from the froth of the churned ocean. The identity of the *triśúla* and the *trident*, the weapon of *Siva* and of *Neptune*, ſeems to eſtabliſh this analogy; and the veneration paid all over *India* to the large buccinum, eſpecially when it can be found with the ſpiral line and mouth turned from left to right, brings inſtantly to our mind the muſick of *Triton*. The Genius of Water is *Varuna*; but he, like the reſt, is far inferior to *Mahéśa*, and even to *Indra*, who is the Prince of the beneficent Genii.

This way of conſidering the Gods as individual ſubſtances, but as diſtinct perſons in diſtinct characters, is common to the *European* and *Indian* ſyſtems; as well as the cuſtom of giving the higheſt of them the greateſt number of names: hence, not to repeat what has been ſaid of *Jupiter*, came the triple capacity of *Diana*; and hence her petition in *Callimachus*, that ſhe might be *polyonymous*, or *many-titled*. The conſort of *Siva* is more eminently marked by theſe diſtinctions than thoſe of *Brahmá* or *Viſhnu*: ſhe reſembles the *Iſis Myrionymos*, to whom an ancient marble, deſcribed by *Gruter*, is dedicated; but her leading names and characters are *Párvatí*, *Durgá*, *Bhavání*.

As the *Mountain-born* Goddeſs, or *Párvatí*, ſhe has many properties of the Olympian *Juno*: her majeſtick deportment, high ſpirit, and general attributes, are the ſame; and we find her both on Mount *Cailáſa*, and at the banquets of the Deities, uniformly the companion of her huſband. One circumſtance in the parallel is extremely ſingular: ſhe is uſually attended by her ſon *Cárticéya*, who rides on a *peacock*; and in ſome drawings, his own robe ſeems to be ſpangled with eyes; to which muſt be added that, in ſome of her temples, a *peacock*, without a rider, ſtands near her image. Though *Cárticéya*, with his ſix faces and numerous eyes, bears ſome reſemblance to *Argus*, whom *Juno* employed as her principal wardour, yet, as he is a Deity of the ſecond claſs, and a Commander of celeſtial Armies, he ſeems clearly to be the *Orus* of *Egypt*, and the *Mars* of *Italy*: his name, *Scanda*, by which he is celebrated in one of the *Puránas*, has a connection, I am perſuaded, with the old *Secander* of *Perſia*, whom the poets ridiculouſly confound with the *Macedonian*.

The attributes of *Durgá*, or *difficult of acceſs*, are alſo conſpicuous in the feſtival above-mentioned, which is called by her name, and in this character ſhe reſembles *Minerva*; not the peaceful inventreſs of the fine and uſeful arts, but *Pallas*, armed with a helmet and ſpear: both repreſent heroick *Virtue*, or valour united with wiſdom; both ſlew demons and giants with their own hands, and both protected the wiſe and virtuous, who paid them due adoration. As *Pallas*, they ſay, takes her name from *vibrating* a lance, and uſually appears in complete armour, thus *Curis*, the old *Latain* word for a ſpear, was one of *Juno's* titles; and ſo, if *Giraldus* be correct, was *Hoploſmia*, which at *Elis*, it ſeems, meant a female dreſſed in panoply, or complete accoutrements. The *unarmed Minerva* of the *Romans* apparently corre-

ſponds,

ſponds, as patroneſs of Science and Genius, with *Sereſwatí*, the wife of *Brahmá*, and the emblem of his principal *Creative Power*. Both Goddeſſes have given their names to celebrated grammatical works; but the *Sáreſwata* of *Sarúpáchárya* is far more conciſe, as well as more uſeful and agreeable, than the *Minerva* of *Sanctius*.

The *Minerva* of *Italy* invented the *flute*, and *Sereſwatí* preſides over melody: the protectreſs of *Athens* was even, on the ſame account, ſurnamed *Muſicé*.

Many learned mythologiſts, with *Giraldus* at their head, conſider the peaceful *Minerva* as the *Iſis* of *Egypt*; from whoſe temple at *Sais* a wonderful inſcription is quoted by *Plutarch*, which has a reſemblance to the four *Sanſcrit* verſes above exhibited as the text of the *Bhágavat*: "I am all that hath been, and is, and ſhall be; "and my veil no mortal hath ever removed." For my part, I have no doubt that the *Iſwara* and *Isí* of the *Hindus*, are the *Oſiris* and *Iſis* of the *Egyptians*; though a diſtinct eſſay in the manner of *Plutarch* would be requiſite in order to demonſtrate their identity: they mean, I conceive, the *Powers of Nature* conſidered as Male and Female; and *Iſis*, like the other goddeſſes, repreſents the active power of her lord, whoſe *eight* forms, under which he becomes viſible to man, were thus enumerated by *Cálidáſa* near two thouſand years ago. "*Wa*- "*ter* was the firſt work of the Creator; and *Fire* receives "the oblation of clarified butter, as the law ordains: "the *Sacrifice* is performed with ſolemnity: the *two* "*Lights* of heaven diſtinguiſh time; the ſubtil *Ether*, "which is the vehicle of ſound, pervades the univerſe; "the *Earth* is the natural parent of all increaſe; and by "*Air* all things breathing are animated. May *Iſa*, the "*power* propitiouſly apparent in theſe eight forms, bleſs "and ſuſtain you!" The *five* elements, therefore, as well

well as the Sun and Moon, are conſidered as *Iſa*, or the *Ruler*, from which word *Iſí* may be regularly formed; though *Iſání* be the uſual name of his *active Power*, adored as the Goddeſs of Nature. I have not yet found in *Sanſcrit*, the wild, though poetical, tale of *Io;* but am perſuaded, that, by means of the *Puránas*, we ſhall in time diſcover all the learning of the *Egyptians*, without decyphering their hieroglyphicks. The bull of *Iſwara* ſeems to be *Apis*, or *Ap*, as he is more correctly named in the true reading of a paſſage in *Jeremiah;* and if the veneration ſhown, both in *Tibet* and *India*, to ſo amiable and uſeful a quadruped as the Cow, together with the *regeneration* of the *Lama* himſelf, have not ſome affinity with the religion of *Egypt*, and the idolatry of *Iſraël*, we muſt at leaſt allow that circumſtances have wonderfully coincided.

Bhaváni now demands our attention; and in this character I ſuppoſe the wife of *Mahádéva* to be as well the *Juno Cinxia*, or *Lucina*, of the *Romans* (called alſo by them *Diana Solvizona*, and by the *Greeks*, *Illithyia*) as *Venus* herſelf: not the *Italian* Queen of Laughter and Jollity, who, with her Nymphs and Graces, was the beautiful child of poetical imagination, and anſwers to the Indian *Rembhá*, with her celeſtial train of *Apſarâ's*, or damſels of paradiſe; but *Venus Urania*, ſo luxuriantly painted by *Lucretius*, and ſo properly invoked by him at the opening of a poem on nature: *Venus* preſiding over *generation*, and, on that account, exhibited ſometimes of both ſexes, (an union very common in the *Indian* ſculptures,) as in her *bearded* ſtatue at *Rome*, in the images perhaps called *Hermathena*, and in thoſe figures of her which had the form of a *conical marble;* "for the reaſon of which figure we are left (ſays *Tacitus*) "in the dark." The reaſon appears too clearly in the temples and paintings of *Hinduſtan;* where it never ſeems to have entered the heads of the legiſlators or people,

Vol. 1
P. 255. प्रजनश्चास्मिकंदर्पः CAMA.

Vol. 1
P. 256. स्रोतसामस्मिजाह्नवी ३१ GANGA.

people, that any thing natural could be offenſively obſcene; a ſingularity which pervades all their writings and converſation, but is no proof of depravity in their morals.

Both *Plato* and *Cicero* ſpeak of *Eros*, or the Heavenly *Cupid*, as the ſon of *Venus* and *Jupiter*; which proves, that the Monarch of *Olympus*, and the Goddeſs of Fecundity, were connected, as *Mahádéva* and *Bhaváni*. The God *Cáma*, indeed, had *Máyá* and *Caſyapa*, or *Uranus*, for his parents, at leaſt according to the mythologiſts of *Caſhmír*; but, in moſt reſpects, he ſeems the twin-brother of *Cupid*, with richer and more lively appendages. One of his many epithets is *Dípaca*, the *Inflamer*, which is erroneouſly written *Dípuc*; and I am now convinced, that the ſort of reſemblance which has been obſerved between his *Latin* and *Sanſcrit* names is accidental: in each name the three firſt letters are the *root*, and between them there is no affinity. Whether any mythological connection ſubſiſted between the *amaracus*, with the fragrant leaves of which *Hymen* bound his temples, and the *tulaſí of India*, muſt be left undetermined: the botanical relation of the two plants (if *amaracus* be properly tranſlated *marjorum*) is extremely near.

One of the moſt remarkable ceremonies in the feſtival of the *Indian* Goddeſs, is that before-mentioned, of caſting her image *into the river*. The *Pandits*, of whom I inquired concerning its origin and import, anſwered, "that it was preſcribed by the *Véda*, they knew not "why;" but this cuſtom has, I conceive, a relation to the doctrine, that *water* is a *form* of *Iſwara*, and conſequently of *Iſáni*, who is even repreſented by ſome as the patroneſs of that element, to which her figure is reſtored after having received all due honours on *earth*, which is conſidered as another *form* of the God of Nature, though

though ſubſequent, in the order of Creation, to the primeval fluid. There ſeems no deciſive proof of one original ſyſtem among idolatrous nations in the worſhip of river-gods and river-goddeſſes, nor in the homage paid to their ſtreams, and the ideas of purification annexed to them; ſince *Greeks*, *Italians*, *Egyptians*, and *Hindus*, might (without any communication with each other) have adored the ſeveral Divinities of their great rivers, from which they derived pleaſure, health, and abundance. The notion of Doctor *Muſgrave*, that large rivers were ſuppoſed, from their ſtrength and rapidity, to be conducted by Gods, while rivulets only were protected by female Deities, is, like moſt other notions of grammarians on the genders of nouns, overthrown by facts. Moſt of the great *Indian* rivers are feminine; and the three goddeſſes of the waters, whom the *Hindus* chiefly venerate, are *Gangá*, who ſprang, like armed *Pallas*, from the head of the Indian *Jove*; *Yamuná*, daughter of the Sun; and *Sereſwatí*. All three met at *Prayágá*, thence called *Trivéni*, or *the three platted locks*; but *Sereſwatí*, according to the popular belief, ſinks under ground, and riſes at another *Trivéni* near *Húgli*, where ſhe rejoins her beloved *Gangá*. The *Brahmaputra* is, indeed, a male river; and, as his name ſignifies the Son of *Brahmá*, I thence took occaſion to feign that he was married to *Gangá*, though I have not yet ſeen any mention of him, as a God, in the *Sanſcrit* books.

Two incarnate deities of the firſt rank, *Ráma* and *Criſhna*, muſt now be introduced, and their ſeveral attributes diſtinctly explained. The firſt of them, I believe, was the *Dionyſos* of the *Greeks*, whom they named *Bromius*, without knowing why; and *Bugenes*, when they repreſented him *horned*; as well as *Lyaios* and *Eleutherios*, the Deliverer, and *Triambos*, or *Dithyrambos*, the Triumphant. Moſt of theſe titles were adopted by the *Romans*, by whom he was called *Bruma*, *Tauriformis*,

formis, Liber, Triumphus; and both nations had records or traditionary accounts of his *giving laws* to men, and deciding their conteſts; of his improving navigation and commerce; and, what may appear yet more obſervable, of his conquering *India*, and other countries, with an army of *Satyrs*, commanded by no leſs a perſonage than *Pan;* whom *Lilius Giraldus* (on what authority I know not) aſſerts to have reſided in *Iberia*, "when he had returned (ſays the learned Mythologiſt) "from the *Indian* war, in which he accompanied "*Bacchus*." It were ſuperfluous in a mere eſſay, to run any length in the parallel between this *European* God and the ſovereign *Ayodhyà*, whom the *Hindus* believe to have been an appearance on earth of the *Preſerving Power;* to have been a conqueror of the higheſt renown, and the deliverer of nations from tyrants, as well as of his conſort *Sítá* from the giant *Rávan*, king of *Lancá;* and to have commanded in chief a numerous and intrepid race of thoſe large *Monkeys* which our naturaliſts, or ſome of them, have denominated *Indian* Satyrs. His General, the Prince of Satyrs, was named *Hanumat*, or *with high cheek-bones;* and, with workmen of ſuch agility, he ſoon raiſed a bridge of rocks over the ſea, part of which, ſay the *Hindus*, yet remains; and it is, probably, the ſeries of rocks to which the *Muſelmans*, or the *Portugueſe*, have given the fooliſh name of *Adam's* (it ſhould be called *Ráma's*) *Bridge*. Might not this army of Satyrs have been only a race of mountaineers, whom *Ráma* (if ſuch a monarch ever exiſted) had civilized? However that may be, the large breed of *Indian* Apes is at this moment held in high veneration by the *Hindus*, and fed with devotion by the *Bráhmans*, who ſeem, in two or three places on the banks of the *Ganges*, to have a regular endowment for the ſupport of them. They live in tribes of three or four hundred, are wonderfully gentle, (I ſpeak as an eye-witneſs,) and appear to have ſome kind of order and ſubordination in their little ſylvan polity. We muſt not omit,

omit, that the father of *Hanumat* was the God of Wine, named *Pavan*, one of the eight Genii; and, as *Pan* improved the pipe by adding ſix reeds, and "played ex-"quiſitely on the cithern a few moments after his birth," ſo one of the four ſyſtems of *Indian* muſick bears the name of *Hanumat*, or *Hanumán* in the nominative, as its inventor, and is now in general eſtimation.

The war of *Lancá* is dramatically repreſented at the feſtival of *Ráma*, on the ninth day of the new moon of *Chaitra;* and the drama concludes (ſays *Holwel*, who had often ſeen it) with an exhibition of the fire-ordeal, by which the victor's wife *Sítá* gave proof of her connubial fidelity. "The dialogue (he adds) is taken from "one of the eighteen holy books," meaning, I ſuppoſe, the *Puránas;* but the *Hindus* have a great number of regular dramas, at leaſt two thouſand years old, and among them are ſeveral very fine ones on the ſtory of *Ráma*. The firſt poet of the *Hindus* was the great *Válmíc*, and his *Rámáyan* is an Epick Poem on the ſame ſubject, which, in unity of action, magnificence of imagery, and elegance of ſtyle, far ſurpaſſes the learned and elaborate work of *Nonnus*, entitled *Dionyſiaca*, half of which, or twenty-four books, I peruſed with great eagerneſs when I was very young, and ſhould have travelled to the concluſion of it, if other purſuits had not engaged me. I ſhall never have leiſure to compare the *Dionyſiacks* with the *Rámáyan*, but am confident, that an accurate compariſon of the two poems would prove *Dionyſos* and *Ráma* to have been the ſame perſon; and I incline to think that he was *Ráma*, the ſon of *Cúſh*, who might have eſtabliſhed the firſt regular government in this part of *Aſia*. I had almoſt forgotten, that *Meros* is ſaid by the *Greeks* to have been a mountain of *India*, on which their *Dionyſos* was born; and that *Méru*, though it generally means the north pole in the *Indian* geography, is alſo a mountain near

the city of *Naiſhada*, or *Nyſa*, called by the *Grecian* geographers *Dionyſopolis*, and univerſally celebrated in the *Sanſcrit* poems; though the birth-place of *Ráma* is ſuppoſed to have been *Ayódhyá*, or *Audh*. That ancient city extended, if we believe the *Bráhmans*, over a line of ten *Yojans*, or about forty miles; and the preſent city of *Lac'hnau*, pronounced *Lucnow*, was only a lodge for one of its gates, called *Lacſhmanadwára*, or the gate of *Lacſhman*, a brother of *Ráma*. M. *Sonnerat* ſuppoſes *Ayódhyá* to have been *Siam*; a moſt erroneous and unfounded ſuppoſition; which would have been of little conſequence, if he had not grounded an argument on it, that *Ráma* was the ſame perſon with *Buddha*, who muſt have appeared many centuries after the conqueſt of *Lancá*.

The ſecond great divinity, *Chriſhna*, paſſed a life, according to the *Indians*, of a moſt extraordinary and incomprehenſible nature. He was the ſon of *Dévací* by *Vaſuđeva*; but his birth was concealed through fear of the tyrant *Canſa*, to whom it had been predicted, that a child born at that time, in that family, would deſtroy him: he was foſtered, therefore, in *Mat'hurá* by an honeſt herdſman, ſurnamed *Ananda*, or *Happy*; and his amiable wife *Yaſódá*, who, like another *Pales*, was conſtantly occupied in her paſtures and her dairy. In their family were a multitude of young *Gópas*, or *Cowherds*, and beautiful *Gópis*, or *milkmaids*, who were his playfellows during his infancy; and, in his early youth, he ſelected *nine* damſels as his favourites, with whom he paſſed his gay hours in dancing, ſporting, and playing on his flute. For the remarkable number of his *Gópis* I have no authority but a whimſical picture, where *nine* girls are grouped in the form of an elephant, on which he ſits and pipes; and, unfortunately, the word *nava* ſignifies both *nine* and *new*, or young; ſo that, in the following ſtanza, it may admit of two interpretations:

tara-

tarañijápulinè navaballavî
periſadá ſaha célicutúhalát
drutavilamwitacháruviháriṇam
herimaham hrî dayéna ſadá vahé.

"I bear in my boſom continually that God, who, for "ſportive recreation with a train of *nine* (young) dairy-"maids, dances gracefully, now quick, now ſlow, on "the ſands juſt left by the Daughter of the Sun."

Both he and the three *Rámas* are deſcribed as youths of perfect beauty; but the princeſſes of *Hinduſtán*, as well as the damſels of *Nanda*'s farm, were paſſionately in love with *Criſhna*, who continues to this hour the darling God of the *Indian* women. The ſect of *Hindus*, who adore him with enthuſiaſtick, and almoſt excluſive, devotion, have broached a doctrine, which they maintain with eagerneſs, and which ſeems general in theſe provinces; that he was diſtinct from all the *Avatárs*, who had only an *anſa*, or portion, of his divinity; while *Criſhna* was the *perſon* of *Viſhnu* himſelf in a human form: hence they conſider the third *Ráma*, his elder brother, as the eighth *Avatár*, inveſted with an *emanation* of his divine radiance; and in the principal *Sanſcrit* Dictionary, compiled about two thouſand years ago, *Criſhna*, *Váſadéva*, *Góvinda*, and other names of the Shepherd God, are intermixed with epithets of *Nárâyan*, or the Divine Spirit. All the *Avatárs* are painted with gemmed *Ethiopian*, or *Parthian* coronets; with rays encircling their heads; jewels in their ears; two necklaces, one ſtraight, and one pendent on their boſoms, with dropping gems; garlands of well-diſpoſed many-coloured flowers, or collars of pearls, hanging down below their waiſts; looſe mantles of golden tiſſue or dyed ſilk, embroidered on their hems with flowers, elegantly thrown over one ſhoulder, and folded, like ribands,

Vol. I
P. 260 रामः शस्त्रभृतामहम् RAMA.

Vol. I
P. 259 ऋषीणां वासुदेवोऽस्मि CRISHNA.

ribands, acroſs the breaſt; with bracelets too on one arm, and on each wriſt: they are naked to the waiſts, and uniformly with *dark azure* fleſh, in alluſion, probably, to the tint of that primordial fluid on which *Nárâyan* moved in the beginning of time; but their ſkirts are bright yellow, the colour of the curious pericarpium in the center of the water-lily, where *Nature*, as Dr. *Murray* obſerves, *in ſome degree diſcloſes her ſecrets*, each ſeed containing, before it germinates, a few perfect leaves: they are ſometimes drawn with that flower in one hand; a radiated elliptical ring, uſed as a miſſile weapon, in a ſecond; the ſacred ſhell, or left-handed buccinum, in a third; and a mace, or battle-axe, in a fourth. But *Criſhna*, when he appears, as he ſometimes does appear, among the *Avatárs*, is more ſplendidly decorated than any, and wears a rich garland of ſylvan flowers, whence he is named *Vanamáli*, as low as his ankles, which are adorned with ſtrings of pearls. Dark blue, approaching to *black*, which is the meaning of the word *Criſhna*, is believed to have been his complexion; and hence the large bee of that colour is conſecrated to him, and is often drawn fluttering over his head. That azure tint, which approaches to blackneſs, is peculiar, as we have already remarked, to *Viſhnu*: and hence in the great reſervoir or ciſtern at *Cátmándu*, the capital of *Népal*, there is placed in a recumbent poſture, a large well-proportioned image of *blue* marble, repreſenting *Nárâyan* floating on the waters. But let us return to the actions of *Criſhna*, who was not leſs heroick than lovely, and, when a boy, ſlew the terrible ſerpent *Cáliya*, with a number of giants and monſters. At a more advanced age, he put to death his cruel enemy *Canſa*; and, having taken under his protection the king *Yudhiſht'hir*, and the other *Pándus*, who had been grievouſly oppreſſed by the *Curus*, and their tyrannical chief, he kindled the war deſcribed in the great Epick Poem, entitled the *Mahábhárat*, at the proſperous concluſion of which he returned to his heavenly ſeat

in

in *Vaicont'ha*, having left the inſtructions compriſed in the *Gítà* with his diſconſolate friend *Arjun*, whoſe grandſon became ſovereign of *India*.

In this picture it is impoſſible not to diſcover, at the firſt glance, the features of *Apollo*, ſurnamed *Nomios*, or the *Paſtoral*, in *Greece*, and *Opifer* in *Italy*; who fed the herds of *Admetus*, and ſlew the ſerpent *Python*; a God amorous, beautiful, and warlike. The word *Góvinda* may be literally tranſlated *Nomois*, as *Céſava* is *Crinitus*, or *with fine hair*; but whether *Gópála*, or the *herdſman*, has any relation to *Apollo*, let our Etymologiſts determine.

Colonel *Vallencey*, whoſe learned inquiries into the ancient literature of *Ireland* are highly intereſting, aſſures me, that *Criſhna* in *Iriſh* means the *Sun*; and we find *Apollo* and *Sol* conſidered by the *Roman* poets as the ſame deity. I am inclined, indeed, to believe, that not only *Criſhna*, or *Viſhnu*, but even *Brahmá* and *Siva*, when united, and expreſſed by the myſtical word O'M, were deſigned by the firſt idolaters to repreſent the Solar Fire; but *Phœbus*, or the *orb of the Sun* perſonified, is adored by the *Indians* as the God *Súrya*, whence the ſect who pay him particular adoration, are called *Sauras*. Their poets and painters deſcribe his car as drawn by ſeven green horſes, preceded by *Arun*, or the *Dawn*, who acts as his charioteer, and followed by thouſands of Genii, worſhipping him, and modulating his praiſes. He has a multitude of names, and among them twelve epithets or titles, which denote his diſtinct *powers* in each of the twelve months; thoſe *powers* are called *Adityas*, or ſons of *Aditi* by *Caſyapa*, the *Indian Uranus*; and one of them has, according to ſome authorities, the name of *Viſhnu*, or *Pervader*.

Súrya

Súrya is believed to have deſcended frequently from his car in a human ſhape, and to have left a race on earth, who are equally renowned in the *Indian* ſtories with the *Heliadai* of *Greece*. It is very ſingular, that his two ſons, called *Aſwinau*, or *Aſwinícumárau*, in the dual, ſhould be conſidered as twin-brothers, and painted like *Caſtor* and *Pollux*; but they have each the character of *Æſculapius* among the Gods, and are believed to have been born of a nymph, who, in the form of a mare, was impregnated with ſun-beams. I ſuſpect the whole fable of *Caſyapa* and his progeny to be aſtronomical, and cannot but imagine, that the *Greek* name *Caſſiopeia* has a relation to it.

Another great *Indian* family are called the *Children of the Moon*, or *Chandra*; who is a male Deity, and conſequently not to be compared with *Artemis*, or *Diana*; nor have I yet found a parallel in *India* for the Goddeſs of the *Chaſe*, who ſeems to have been the daughter of an *European* fancy, and very naturally created by the invention of *Bucolick* and *Georgick* poets; yet ſince the *Moon* is a *form* of *Iſwara*, the God of Nature, according to the verſe of *Cálidáſa*, and ſince *Iſání* has been ſhown to be his *conſort*, or *power*, we may conſider her, in one of her characters, as *Luna*; eſpecially as we ſhall ſoon be convinced that, in the ſhades below, ſhe correſponds with the *Hecate* of *Europe*.

The worſhip of Solar or Veſtal *Fire* may be aſcribed, like that of *Oſiris* and *Iſis*, to the ſecond ſource of Mythology, or an enthuſiaſtick admiration of Nature's wonderful powers; and it ſeems, as far as I can yet underſtand the *Védas*, to be the principal worſhip recommended in them. We have ſeen, that *Maḥádéva* himſelf is perſonated by *Fire*; but ſubordinate to him is the God *Agni*, often called *Pávaca*, or the *Purifier*, who anſwers

anſwers to the *Vulcan* of *Egypt*, where he was a Deity of high rank; and his wife *Swáhá* reſembles the younger *Veſta*, or *Veſtia*, as the *Eolians* pronounced the *Greek* word for a *hearth*. *Bhaváni*, or *Venus*, is the conſort of the Supreme Deſtructive and Generative Power; but the *Greeks* and *Romans*, whoſe ſyſtem is leſs regular than that of the *Indians*, married her to their *divine artiſt*, whom they alſo named *Hephaiſtos* and *Vulcan*, and who ſeems to be the *Indian Viſwacarman*, the *forger of arms* for the Gods, and inventor of the *agnyaſtra*, or *fiery ſhaft*, in the war between them and the *Daitya*, or *Titans*. It is not eaſy here to refrain from obſerving (and, if the obſervation gives offence in *England*, it is contrary to my intention) that the newly-diſcovered planet ſhould unqueſtionably be named *Vulcan*; ſince the confuſion of analogy in the names of the planets is inelegant, unſcholarly, and unphiloſophical. The name *Uranus* is appropriated to the firmament; but *Vulcan*, the ſloweſt of the Gods, and, according to the *Egyptian* prieſts, the oldeſt of them, agrees admirably with an orb, which muſt perform its revolution in a very long period; and, by giving it this denomination, we ſhall have ſeven primary Planets with the names of as many *Roman* Deities, *Mercury*, *Venus*, *Tellus*, *Mars*, *Jupiter*, *Saturn*, *Vulcan*.

It has already been intimated, that the *Muſes* and *Nymphs* are the *Gópya* of *Mat'hurà*, and of *Góverdhan*, the *Parnaſſus* of the *Hindus*, and the lyrick poems of *Jayadéva* will fully juſtify this opinion; but the *Nymphs* of *Muſick* are the *thirty Ráginís*, or *Female Paſſions*, whoſe various functions and properties are ſo richly delineated by the *Indian* painters, and ſo finely deſcribed by the poets: but I will not anticipate what will require a ſeparate Eſſay, by enlarging here on the beautiful allegories of the *Hindus* in their ſyſtem of muſical modes, which they call *Rágás*, or *Paſſions*, and ſuppoſe to be Genii, or Demigods. A very diſtinguiſhed ſon of

Brahmá,

Vol. I.
P. 262 ज्योतिषांरविरंशुमान् SURYA

Vol. I.
P. 264 देवर्षीणांचनारदः। NAREDA

Brahmá, named *Nárad*, whoſe actions are the ſubject of a *Purána*, bears a ſtrong reſemblance to *Hermes*, or *Mercury*: he was a wiſe legiſlator, great in arts and in arms, an eloquent meſſenger of the Gods, either to one another, or to favoured mortals, and a muſician of exquiſite ſkill. His invention of the *Víná*, or *Indian* lute, is thus deſcribed in the poem entitled *Mágha*: "*Nárad* "ſat watching from time to time his large *Víná*, which, "by the impulſe of the breeze, yielded notes that "pierced ſucceſſively the regions of his ear, and pro-"ceeded by muſical intervals." The law tract, ſuppoſed to have been revealed by *Nárad*, is at this hour cited by the *Pandits*; and we cannot, therefore, believe him to have been the patron of *Thieves*; though an innocent theft of *Criſhna's* cattle, by way of putting his divinity to a proof, be ſtrangely imputed, in the *Bhágavat*, to his father *Brahmá*.

The laſt of the *Greek* or *Italian* Divinities, for whom we find a parallel in the Pantheon of *India*, is the *Stygian* or *Taurick Diana*, otherwiſe named *Hecate*, and often confounded with *Proſerpine*; and there can be no doubt of her identity with *Cálí*, or the wife of *Siva*, in his character of the *Stygian Jove*. To this black goddeſs, with a collar of golden ſkulls, as we ſee her exhibited in all her principal temples, *human ſacrifices* were anciently offered, as the *Védas* enjoined; but, in the preſent age, they are abſolutely prohibited, as are alſo the ſacrifices of bulls and horſes. Kids are ſtill offered to her; and, to palliate the cruelty of the ſlaughter, which gave ſuch offence to *Buddha*, the *Bráhmans* inculcate a belief, that the poor victims riſe in the heaven of *Indra*, where they become the muſicians of his band.

Inſtead of the obſolete, and now illegal, ſacrifices of a man, a bull, and a horſe, called *Neramédha*, *Gómédha*, and *Aśwamédha*, the powers of nature are

thought to be propitiated by the leſs bloody ceremonies at the end of autumn, when the feſtivals of *Cáli* and *Lacſhmí* are ſolemnized nearly at the ſame time. Now, if it be aſked, how the Goddeſs of Death came to be united with the mild Patroneſs of Abundance, I muſt propoſe another queſtion. How came *Proſerpine* to be repreſented in the *European* ſyſtem as the daughter of *Ceres*? Perhaps, both queſtions may be anſwered by the propoſition of natural philoſophers, that "the ap-"parent deſtruction of a ſubſtance is the production "of it in a different form." The wild muſick of *Cáli's* prieſts at one of her feſtivals, brought inſtantly to my recollection the *Scythian* meaſures of *Diana's* adorers in the ſplendid opera of *Iphigenia* in *Tauris*, which *Gluck* exhibited at *Paris* with leſs genius, indeed, than art, but with every advantage that an orcheſtra could ſupply.

That we may not diſmiſs this aſſemblage of *European* and *Aſiatick* Divinities with a ſubject ſo horrid as the altars of *Hecate* and *Cáli*, let us conclude with two remarks, which properly, indeed, belong to the *Indian* Philoſophy, with which we are not at preſent concerned. Firſt; *Elyſium* (not the place, but the bliſs enjoyed there, in which ſenſe *Milton* uſes the word) cannot but appear, as deſcribed by the poets, a very tedious and inſipid kind of enjoyment: It is, however, more exalted than the temporary *Elyſium* in the court of *Indra*, where the pleaſures, as in *Muhammed's* paradiſe, are wholly ſenſual; but the *Mucti*, or *Elyſian* happineſs of the *Védánta* School, is far more ſublime; for they repreſent it as a total abſorption, though not ſuch as to deſtroy conſciouſneſs in the Divine Eſſence; but, for the reaſon before ſuggeſted, I ſay no more of this idea of beatitude, and forbear touching on the doctrine of tranſmigration, and the ſimilarity of the *Védánta* to the *Sicilian*, *Italick*, and old *Academick* Schools.

Secondly;

Secondly; in the myſtical and elevated character of *Pan*, as a perſonification of the *Univerſe*, according to the notion of Lord *Bacon*, there ariſes a ſort of ſimilitude between him and *Criſhna*, conſidered as *Nárâyan*. The *Grecian* God plays divinely on his reed, to expreſs, we are told, ethereal harmony. He has his attendant Nymphs of the paſtures and the dairy. His face is as radiant as the ſky, and his head illumined with the horns of a creſcent; whilſt his lower extremities are deformed and ſhaggy, as a ſymbol of the vegetables which the earth produces, and of the beaſts who roam over the face of it. Now we may compare this portrait partly with the general character of *Criſhna*, the Shepherd God, and partly with the deſcription in the *Bhágavat*, of the Divine Spirit exhibited *in the form of this Univerſal World;* to which we may add the following ſtory from the ſame extraordinary poem. The Nymphs had complained to *Yaſódá*, that the child *Criſhna* had been drinking their curds and milk. On being reproved by his foſter-mother for this indiſcretion, he requeſted her to examine his mouth; in which, to her juſt amazement, ſhe beheld the *whole univerſe* in all its plenitude of magnificence.

We muſt not be ſurpriſed at finding, on a cloſe examination, that the characters of all the *Pagan Deities*, male and female, melt into each other, and at laſt into one or two; for it ſeems a well-founded opinion, that the whole crowd of gods and goddeſſes in ancient *Rome*, and modern *Várânes*, mean only the powers of Nature, and principally thoſe of the *Sun*, expreſſed in a variety of ways, and by a multitude of fanciful names.

Thus have I attempted to trace, imperfectly at preſent, for want of ampler materials, but with a confi-

dence continually increaſing as I advanced, a parallel between the Gods adored in three very different nations, *Greece*, *Italy*, and *India*; but which was the original ſyſtem, and which the copy, I will not preſume to decide; nor are we likely, I preſume, to be ſoon furniſhed with ſufficient grounds for a deciſion. The fundamental rule, that *natural, and moſt human, operations proceed from the ſimple to the compound*, will afford no aſſiſtance on this point; ſince neither the *Aſiatick* nor *European* ſyſtem has any ſimplicity in it; and both are ſo complex, not to ſay abſurd, however intermixed with the beautiful and the ſublime, that the honour, ſuch as it is, of the invention, cannot be allotted to either with tolerable certainty.

Since *Egypt* appears to have been the grand ſource of knowledge for the *weſtern*, and *India* for the more *eaſtern*, parts of the globe, it may ſeem a material queſtion, whether the *Egyptians* communicated their Mythology and Philoſophy to the *Hindus*, or converſely: but what the learned of *Memphis* wrote or ſaid concerning *India*, no mortal knows; and what the learned of *Vârânes* have aſſerted, if any thing, concerning *Egypt*, can give us little ſatisfaction. Such circumſtantial evidence on this queſtion as I have been able to collect, ſhall nevertheleſs be ſtated; becauſe, unſatisfactory as it is, there may be ſomething in it not wholly unworthy of notice; though, after all, whatever colonies may have come from the *Nile* to the *Ganges*, we ſhall, perhaps, agree at laſt with Mr. *Bryant*, that *Egyptians*, *Indians*, *Greeks*, and *Italians*, proceeded originally from one central place, and that the ſame people carried their religion and ſciences into *China* and *Japan*: may we not add, even to *Mexico* and *Peru*?

Every

Every one knows that the true name of *Egypt* is *Miśr*, ſpelled with a palatial ſibilant both in *Hebrew* and *Arabick*. It ſeems in *Hebrew* to have been the proper name of the firſt ſettler in it; and when the *Arabs* uſe the word for *a great city*, they probably mean *a city like the capital of Egypt*. Father *Marco*, a *Roman* miſſionary, who, though not a ſcholar of the firſt rate, is incapable, I am perſuaded, of a deliberate falſehood, lent me the laſt book of a *Rámáyan*, which he had tranſlated through the *Hindi* into his native language, and with it a ſhort vocabulary of mythological and hiſtorical names, which had been explained to him by the *Pandits* of *Betíyà*, where he had long reſided. One of the articles in his little Dictionary was, "*Tirút*, a town or province, in which "the prieſts from *Egypt* ſettled:" and when I aſked him what name *Egypt* bore among the *Hindus*, he ſaid *Miśr*; but obſerved, that they ſometimes confounded it with *Abyſſinia*. I perceived that his memory of what he had written was correct; for *Miśr* was another word in his index, "from which country (he ſaid) came the "*Egyptian* prieſts who ſettled in *Tirút*." I ſuſpected immediately that his intelligence flowed from the *Muſelmans*, who call ſugar-candy *Miſrí*, or *Egyptian*; but, when I examined him cloſely, and earneſtly deſired him to recollect from whom he had received his information, he repeatedly and poſitively declared, that "it "had been given him by ſeveral *Hindus*, and particu- "larly by a *Bráhman*, his intimate friend, who was re- "puted a conſiderable *Pandit*, and had lived three years "near his houſe." We then conceived that the ſeat of his *Egyptian* colony muſt have been *Tiróhit*, commonly pronounced *Tirút*, and anciently called *Mit'hilà*, the principal town of *Janacadeśa*, or *North Bahàr*; but *Mahéſa Pandit*, who was born in that very diſtrict, and who ſubmitted patiently to a long examination concerning *Miśr*, overſet all our concluſions; he denied that the *Bráhmans* of his country were generally ſurnamed *Miśr*, as we had been informed; and ſaid, that the addition of *Miſra* to the name of *Váchespeti*, and other learned au-

thors,

thors, was a title formerly conferred on the writers of *miſcellanies*, or *compilers* of various tracts of religion or ſcience, the word being derived from a root ſignifying *to mix*. Being aſked, where the country of *Miſr* was, "There are two (he anſwered) of that name; one of "them *in the weſt*, under the dominion of *Muſelmáns*; "and another, which all the *Sáſtras* and *Puránas* men- "tion, in a mountainous region to the north of *Ayó-* "*dhyá*." It is evident that by the firſt he meant *Egypt*; but what he meant by the ſecond it is not eaſy to aſcertain. A country, called *Tiruhut*, by our geographers, appears in the maps between the north-eaſtern frontier of *Audh* and the mountains of *Népal*; but whether that was the *Tirút* mentioned to Father *Marco* by his friend of *Betíya* I cannot decide. This only I know with certainty, that *Miſra* is an epithet of two *Bráhmans* in the drama of *Sacontalá*, which was written near a century before the birth of *Chriſt*; that ſome of the greateſt lawyers, and two of the fineſt dramatick poets, of *India* have the ſame title; that we hear it frequently in court added to the names of *Hindu* parties; and that none of the *Pandits*, whom I have ſince conſulted, pretend to know the true meaning of the word, as a proper name, or to give any other explanation of it, than that it is *a ſurname* of Bráhmans *in the weſt*.

On the account given to Colonel *Kyd* by the old *Rájá* of *Criſhnanagar*, "concerning *traditions* among the *Hin-* "*dus*, that ſome *Egyptians* had ſettled in this country," I cannot rely; becauſe I am credibly informed by ſome of the *Rájá's* own family, that he was not a man of ſolid learning, though he poſſeſſed curious books, and had been attentive to the converſation of learned men; beſides, I know that his ſon, and moſt of his kinſmen, have been dabblers in *Perſian* literature, and believe them very likely, by confounding one ſource of information with another, to puzzle themſelves, and miſlead thoſe with whom they converſe. The word

word *Misr*, ſpelled alſo in *Sanſcrit* with a palatial ſibilant, is very remarkable; and, as far as etymology can help us, we may ſafely derive *Nilus* from the *Sanſcrit* word *nila*, or *blue*: ſince *Dionyſius* expreſsly calls the waters of that river "an *azure* ſtream;" and, if we can depend on *Marco*'s Italian verſion of the *Rámáyan*, the name of *Nila* is given to a lofty and ſacred mountain, with a ſummit of pure gold, from which flowed *a river of clear, ſweet, and freſh water.*

M. *Sonnerat* refers to a diſſertation by Mr. *Schmit*, which gained a prize at the Academy of Inſcriptions, "On an *Egyptian* Colony eſtabliſhed in *India*." It would be worth while to examine his authorities, and either to overturn or verify them by ſuch higher authorities as are now acceſſible in theſe provinces. I ſtrongly incline to think him right, and to believe that *Egyptian* prieſts have actually come from the *Nile* to the *Gangà* and *Yamunà*, which the *Bráhmans* moſt aſſuredly would never have left. They might, indeed, have come either to be inſtructed, or to inſtruct; but it ſeems more probable that they viſited the *Sarmans* of *India*, as the ſages of *Greece* viſited them, rather to acquire than to impart knowledge: nor is it likely that the ſelf-ſufficient *Bráhmans* would have received them as their preceptors.

Be all this as it may, I am perſuaded that a connection ſubſiſted between the old idolatrous nations of *Egypt*, *India*, *Greece*, and *Italy*, long before they emigrated to their ſeveral ſettlements, and conſequently before the birth of *Moſes*: but the proof of this propoſition will in no degree affect the truth and ſanctity of the *Moſaick* Hiſtory, which, if confirmation were neceſſary, it would rather tend to confirm. The *Divine Legate*, educated by the daughter of a king, and in all reſpects highly accompliſhed, could not, but know the mythological ſyſtem of *Egypt*; but he muſt have condemned the ſuperſtitions of that people, and deſpiſed the ſpeculative abſurdities of their prieſts; though ſome of

of their traditions concerning the creation and the flood were grounded on truth.

Who was better acquainted with the mythology of *Athens* than *Socrates?* Who more accurately verſed in the Rabbinical doctrines than *Paul?* Who poſſeſſed clearer ideas of all ancient aſtronomical ſyſtems than *Newton?* or of ſcholaſtical metaphyſicks than *Locke?* In whom could the *Roman* Church have had a more formidable opponent than in *Chillingworth*, whoſe deep knowledge of its tenets rendered him ſo competent to diſpute them? In a word, who more exactly knew the abominable rites, and ſhocking idolatry, of *Canaan* than *Moſes* himſelf? Yet the learning of thoſe great men only incited them to ſeek other ſources of truth, piety, and virtue, than thoſe in which they had long been immerſed. There is no ſhadow then of a foundation for an opinion, that *Moſes* borrowed the firſt nine or ten chapters of *Geneſis* from the literature of *Egypt:* ſtill leſs can the adamantine pillars of our *Chriſtian* faith be moved by the reſult of any debates on the comparative antiquity of the *Hindus* and *Egyptians*, or of any inquiries into the *Indian* Theology.

Very reſpectable natives have aſſured me, that one or two miſſionaries have been abſurd enough, in their zeal for the converſion of the *Gentiles*, to urge, "that "the *Hindus* were even now almoſt *Chriſtians*, becauſe "their *Brahmá*, *Viſhnu*, and *Mahéſa*, were no other "than the *Chriſtian* Trinity;" a ſentence in which we can only doubt whether folly, ignorance, or impiety, predominates. The three *powers*, *creative*, *preſervative*, and *deſtructive*, which the *Hindus* expreſs by the triliteral word *O'm*, were groſsly aſcribed by the firſt idolaters, to the *heat*, *light* and *flame* of their miſtaken divinity the Sun; and their wiſer ſucceſſors in the Eaſt, who perceived that the Sun was only a created thing, applied thoſe powers to its Creator; but the *Indian* Triad, and that of *Plato*, which he calls the Supreme Good, the Reaſon, and the Soul,

Soul, are infinitely removed from the holineſs and ſublimity of the doctrine which pious *Chriſtians* have deduced from texts in the Goſpel; though other *Chriſtians*, as pious, openly profeſs their diſſent from them. Each ſect muſt be juſtified by its own faith, and good intentions. This only I mean to inculcate, that the tenet of our Church cannot, without profaneneſs, be compared with that of the *Hindus*, which has only an apparent reſemblance to it, but a very different meaning.

One ſingular fact, however, muſt not be ſuffered to paſs unnoticed. That the name of *Criſhna*, and the general outline of his ſtory, were long anterior to the birth of our Saviour, and probably to the time of *Homer*, we know very certainly; yet the celebrated poem entitled *Bhágavat*, which contains a prolix account of his life, is filled with narratives of a moſt extraordinary kind, but ſtrangely variegated and intermixed with poetical decorations. The incarnate Deity of the *Sanſcrit* romance was cradled, as it informs us, among *herdſmen*; but it adds, that he was educated among them, and paſſed his youth in playing with a party of milkmaids. A tyrant, at the time of his birth, ordered all new-born males to be ſlain; yet this wonderful babe was preſerved by biting the breaſt, inſtead of ſucking the poiſoned nipple, of a nurſe commiſſioned to kill him. He performed amazing, but ridiculous, miracles in his infancy, and, at the age of ſeven years, held up a mountain on the tip of his little finger. He ſaved multitudes, partly by his arms, and partly by his miraculous powers. He raiſed the dead, by deſcending for that purpoſe to the loweſt regions. He was the meekeſt and beſt-tempered of beings, waſhed the feet of the *Bráhmans*, and preached very nobly, indeed, and ſublimely, but always in their favor. He was pure and chaſte in reality, but exhibited an appearance of exceſſive libertiniſm, and had wives or miſtreſſes too numerous to be counted. Laſtly, he was benevolent and tender, yet fomented and conducted

ducted a terrible war. This motley ſtory muſt induce an opinion, that the ſpurious Goſpels, which abounded in the firſt age of *Chriſtianity*, had been brought to *India*, and the wildeſt parts of them repeated to the *Hindus*, who ingrafted them on the old fable of *Céſava*, the *Apollo* of *Greece*.

As to the general extenſion of our pure faith in *Hinduſtán*, there are at preſent many ſad obſtacles to it. The *Muſelmáns* are already a ſort of heterodox *Chriſtians*. They are *Chriſtians*, if *Locke* reaſons juſtly, becauſe they firmly believe the immaculate conception, divine character, and miracles of the *Meſſiah;* but they are heterodox, in denying vehemently his character of Son, and his equality, as God, with the Father, of whoſe unity and attributes they entertain and expreſs the moſt awful ideas; while they conſider our doctrine as perfect blaſphemy, and inſiſt, that our copies of the Scriptures have been corrupted both by *Jews* and *Chriſtians*. It will be inexpreſſibly difficult to undeceive them, and ſcarce poſſible to diminiſh their veneration for *Mohammed* and *Ali*, who were both very extraordinary men, and the ſecond a man of unexceptionable morals. The *Koràn* ſhines, indeed, with a borrowed light, ſince moſt of its beauties are taken from our Scriptures; but it has great beauties, and the *Muſelmáns* will not be convinced that they were borrowed. The *Hindus*, on the other hand, would readily admit the truth of the Goſpel; but they contend, that it is perfectly conſiſtent with their *Sáſtras*. The Deity, they ſay, has appeared innumerable times, in many parts of this world, and of all worlds, for the ſalvation of his creatures; and though we adore him in one appearance, and they in others, yet we adore, they ſay, the ſame God, to whom our ſeveral worſhips, though different in form, are equally acceptable, if they be ſincere in ſubſtance. We may aſſure ourſelves, that neither *Muſelmáns* nor *Hindus* will ever be converted by any miſſion from the Church of *Rome*, or from any

other Church; and the only human mode, perhaps, of cauſing ſo great a revolution, will be to tranſlate into *Sanſcrit* and *Perſian*, ſuch chapters of the Prophets, particularly of *Iſaiah*, as are indiſputably Evangelical, together with one of the Goſpels; and a plain prefatory diſcourſe, containing full evidence of the very diſtant ages, in which the predictions themſelves, and the hiſtory of the Divine Perſon predicted, were ſeverally made publick; and then quietly to diſperſe the work among the well-educated natives; with whom, if, in due time, it failed of producing very ſalutary fruit by its natural influence, we could only lament more than ever the ſtrength of prejudice, and the weakneſs of unaſſiſted reaſon.

A DESCRIP-

X.

A DESCRIPTION

OF A

CAVE NEAR GYÁ.

By JOHN HERBERT HARINGTON, Esq.

A KNOWLEDGE of the Antiquities of *Hindoſtan* forming one of the ſeveral objects propoſed by the inſtitution of our Society, with the hope of communicating ſomething acceptable on this head, I took the opportunity of a late excurſion up the country, to ſee the *Cave* which Mr. *Hodgekis* a few years ſince attempted to viſit, at the deſire, I believe, of the late Governor General, but was aſſaſſinated in his way to it by the followers of one of the rebellious allies of *Cheyt Sing*. On my deſcribing it to the Preſident, whom I had the pleaſure to accompany, I was encouraged by him to think that a particular account of it would be curious and uſeful; and in conſequence made a ſecond viſit to it from *Gyá*, when I took the following meaſurements, and, by the means of my *Moonſhee*, a copy of the inſcription on it, which I had deſpaired of preſenting to you, but in its original language, (a *Pandit* at *Benáris* having attempted in vain to get it read during theſe laſt three months,) till the kind aſſiſtance of Mr. *Wilkins* enabled me to add the accompanying tranſlation and remarks, to what would otherwiſe have given little ſatisfaction.

The hill, or rather rock, from which the cavern is dug, lies about fourteen miles north of the ancient city of

of *Gyá*, and ſeems to be one of the ſouth-eaſtern hills of the chain of mountains called by *Rennel*, *Caramſhah*, both being a ſhort diſtance to the weſt of the *Phulgó*.

It is now diſtinguiſhed by the name of *Nágurjenee*; but this may perhaps be a modern appellation, no mention of it being made in the inſcription. Its texture is a kind of granite, called by the *Mohummedan* natives, *Sung Khâreh*, which compoſes the whole rock, of a moderate height, very craggy and uneven, and ſteep in its aſcent.

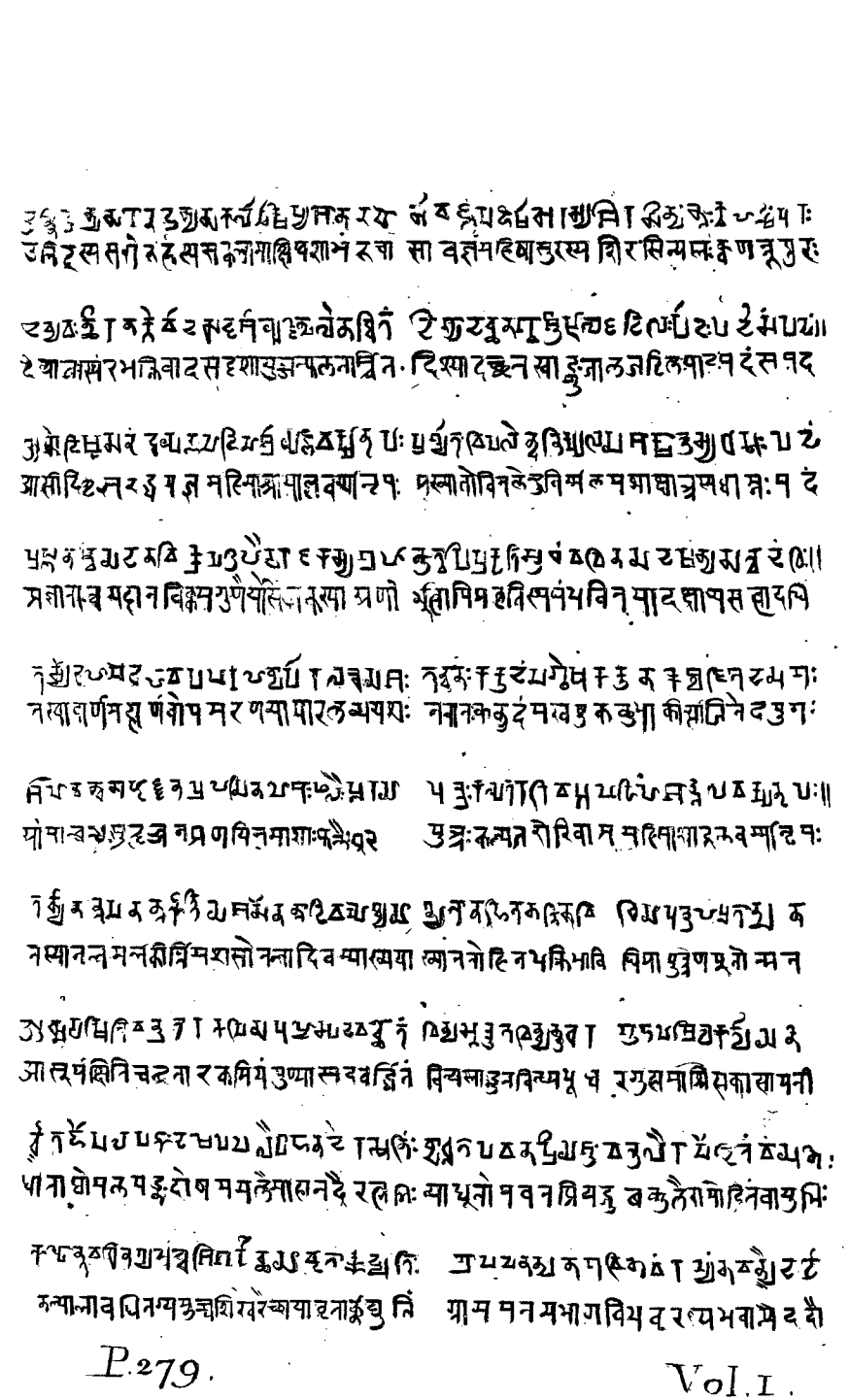
The *cave* is ſituated on the ſouthern declivity, about two thirds from the ſummit: a tree immediately before it prevents its being ſeen from the bottom. It has only one narrow entrance, from the ſouth, two feet and a half in breadth, ſix feet high, and of thickneſs exactly equal. This leads to a room of an oval form, with a vaulted roof, which I meaſured twice, and found to be forty-four feet in length from eaſt to weſt, eighteen feet and a half in breadth, and ten feet and a quarter in height at the centre. This immenſe cavity is dug entirely out of the ſolid rock, and is exceedingly well poliſhed, but without any ornament. The ſame ſtone extends much farther than the excavated part, on each ſide of it, and is altogether, I imagine, full an hundred feet in length. The inhabitants near know nothing of its hiſtory, or age; but I learnt from a chief of the neighbouring village, that a tradition is extant, of a *Mohummedan*, named *Minhâj-u-deen*, having performed his *cheeleh*, or forty days devotion, in this cavern; and that he was cotemporary with *Mukhdoom Sherf-u-deen*, a venerated *welee*, who died in *Behâr* in the 590th year of the *Hijree*; and he even went ſo far as to aver, that he himſelf was deſcended from *Minhâj-u-deen*, and had records at *Patna* of his family's genealogy to the preſent time. What credit is due to this I will not pretend to ſay; but the room is certainly now frequented by

by *Mohummedans*, and has been for ſome time, as there are the remains of an old moſque cloſe before it; and within a raiſed terrace, ſuch as the *Mohummedan* devotees are uſed to conſtruct for their religious retirement. There are two inſcriptions, one on each ſide of the interior part of the entrance; impreſſions of both which my *Moonſhee* took off in the courſe of three days, with much trouble, and ſufficient accuracy, to enable Mr. *Wilkins* to underſtand and explain the whole of one; though many *Pandits*, I was informed, who had ſeen the original engraving, had attempted in vain to decypher it. The other, which conſiſts of one line only, is unfortunately of a different character, and remains ſtill unintelligible.

The following letter and remarks, which Mr. *Wilkins* has favored me with, make it unneceſſary for me to ſay any thing of the contents of the inſcription. I can only regret with him that the date is yet undiſcovered; as what is now but a gratification of curioſity, might then have been a valuable clue to the illuſtration of obſcure events in ancient hiſtory. There are, however, ſeveral other *caves* in the adjoining hills, which I likewiſe viſited, but had not time to take the inſcriptions: and from theſe, I hope, a date will be diſcovered.

Were any other teſtimony, beſides the inſcriptions, wanted, to ſhew that theſe *caves* were religious temples, the remains of three defaced images near another, which I viſited, called *Curram Choſſar*, would be ſufficient proof of it. A third, the name of which I could not learn, has its entrance very curiouſly wrought with elephants, and other ornaments, of which I hope in a ſhort time to preſent a drawing to the Society.

A LETTER



A LETTER

FROM

CHARLES WILKINS, Esq.

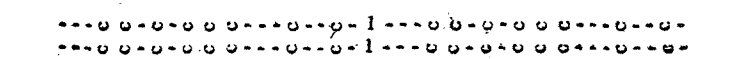
TO

THE SECRETARY.

DEAR SIR,

HAVING been ſo fortunate as to make out the whole of the very curious Inſcription you were ſo obliging as to lend me, I herewith return it, accompanied by an exact Copy, in a reduced ſize, interlined with each correſponding letter in the modern *Dĕwnāgăr* character; and alſo a Copy of my Tranſlation, which is as literal as the idioms would admit it to be.

The character is undoubtedly the moſt ancient of any that have hitherto come under my inſpection. It is not only diſſimilar to that which is now in uſe, but even very materially different from that we find in inſcriptions of eighteen hundred years ago. But though the writing be not modern, the language is pure *Sam-ſkreet*, written in a long verſe, called *Sārdōōlă-vĕĕkrēē-rĕĕtā*, and conſiſts of four pauſes, of nineteen ſyllables each, in this form:



The metre was no ſmall help in decyphering the vowels.

The

The firſt lines of the firſt verſe allude to the ſtory of *Bhăwānēē*'s killing the evil ſpirit *Măhĕĕſhāſóór*, who, in the diſguiſe of a buffalo, as the name imports, had fought with *Eendră*, and his celeſtial bands, for a hundred years, defeated him, and uſurped his throne. The ſtory is to be found at large in a little book called *Chandee*. The vanquiſhed ſpirits, being baniſhed the heavens, and doomed to wander the earth, after a while aſſemble, with their chief *Eendră* at their head, and reſolve to lay their grievances before *Vĕĕſhnöö* and *Sĕĕv*. Conducted by *Brăhmā*, they repair into the preſence of thoſe Deities, who heard their complaints with compaſſion; and their anger was ſo violent againſt *Măhĕĕ-ſhāſóór*, that a kind of flame iſſued from their mouths, and from the mouths of the reſt of the principal Gods, of which was formed a Goddeſs of inexpreſſible beauty with ten arms, and each hand holding a different weapon. This was a transfiguration of *Bhăwānēē*, the conſort of *Sĕĕv*, under which ſhe is generally called *Dŏŏrgā*. She is ſent againſt the uſurper. She mounts her lion, the gift of the mountain *Hĕĕmālăy*, *(ſnowy,)* and attacks the monſter, who ſhifts his form repeatedly; till at length the Goddeſs *planteth her foot upon his head*, and cuts it off with a ſingle ſtroke of her ſword. Immediately the upper part of a human body iſſues through the neck of the headleſs buffalo, and aims a ſtroke, which being warded off by the lion with his right paw, *Dŏŏrgā* puts an end to the combat, by piercing him through the heart with a ſpear. I have in my poſſeſſion a ſtatue of the Goddeſs, with one foot on her lion, and the other on the monſter, in the attitude here laſtly deſcribed.

The want of a date diſappointed my expectations. I had ſome hopes that it was contained in the ſingle line, which you informed me was taken from another part of the *cave*; but, although I have not yet ſucceeded in making out the whole, I have diſcovered enough to convince me that it contains nothing but an invocation.

If

If you ſhould be ſo fortunate as to obtain correct copies of the reſt of the Inſcriptions that are to be found in the *Caves* of thoſe mountains, I make no doubt but that we ſhall meet with ſome circumſtance or other, that will guide us to a diſcovery of their antiquity.

I have the pleaſure to ſubſcribe myſelf,

DEAR SIR,

Your very ſincere Friend,

And obedient humble Servant,

CHARLES WILKINS.

Calcutta, 17*th March*, 1785.

A TRANSLATION OF A SANSCRIT INSCRIPTION.

WHEN the foot of the Goddeſs *(a)* was, with its tinkling ornaments, planted upon the head of *Măhĕĕſhāsŏŏr*, *(b)* all the bloſſom of the new-blown flower of the fountain *(c)* was diſperſed with diſgrace by its ſuperior beauty. May that foot, radiant with a fringe of refulgent beams iſſuing from its pure bright nails, endue you with a ſteady and an unexampled devotion, offered up with fruits, and ſhew you the way to dignity and wealth!

The illuſtrious *Yăgnă Vārmă* was a Prince whoſe greatneſs conſiſted in free-will offerings. His reputation was as unſullied as the moon. He was renowned amongſt the Martial Tribes; and although he was, by deſcent, by wiſdom, courage, charity, and other qualities, the fore-leader of the royal line; yet, from the natural humility of his temper, he diſturbed not the powerful ocean.

His auſpicious ſon, *Sărdōōlă Vārmă*, a Prince whoſe magnificence flowed, as it were, from the tree of imagination, *(d)* diſplayed the enſign of royalty in ſacrifices, and

(a) *Bhăwānēē* the wife of *Seev*.
(b) The name of an evil Spirit.
(c) Epithet of the lotus.
(d) In the original *Kălpă-tărŏŏ*, a fabulous tree which yielded every thing that was demanded.

and the world was ſubdued by his infinite renown. He gratified the hopes of relations, friends, and dependants; and honor was achieved from the deed of death *(e)* near the upriſing ocean.

By his pious ſon, called *Ānănță Vărmă* becauſe of his infinite renown, the holy abode of us contemplative men, who are always ſtudious for his good, and employed in his ſervice, hath been increaſed, and rendered famous, as long as the Earth, the Sun, and Moon, and ſtarry Heaven, ſhall endure; and *Kătyāyănēē (f)* having taken ſanctuary, and being placed, in this cavern of the wonderful *Veen'dyă (g)* mountains.

The holy Prince gave unto *Bhăwānēē*, in perpetuity, the village ———— *(h)* and its hilly lands, by whoſe lofty mountain-tops the ſunny beams are caſt in ſhade. Its filth and impurities are waſhed away by the precious ſtores of the *Măhānădă*, *(i)* and it is refreſhed by the breezes from the waving *Prĕĕyăngŏŏs (k)* and *Băkŏŏlăs (l)* of its groves

(e) He was probably carried to *Gănga-Sāgăr* to die.

(f) One of the names of *Dŏŏrgă* or *Bŏwānēē*.

(g) The name of the chain of mountains which commences at *Chunar*.

(h) The name, which consisted of two long syllables, is wanting in the original.

(i) Probably the river called the *Mahonah* in RENNEL's Map of South *Bahar*.

(k) Probably the *Champa*.

(l) *Moulseree*.

XI.

TRANSLATION

OF A

SANSCRIT INSCRIPTION,

COPIED FROM A STONE AT BOODDHA GAYA,

BY MR. WILMOT, 1785.

Tranſlated by CHARLES WILKINS, Eſq.

IN the midſt of a wild and dreadful foreſt, flouriſhing with trees of ſweet-ſcented flowers, and abounding in fruits and roots, infeſted with lions and tigers, deſtitute of human ſociety, and frequented by the *Moonees*, reſided *Bŏŏd-dhă*, the Author of Happineſs, and a portion of *Narayan*. This Deity *Hărĕĕ*, who is the Lord *Hărēēſa*, the poſſeſſor of all, appeared in this ocean of natural Beings at the cloſe of the *Devāpără*, and beginning of the *Kălĕĕ Yoog*. He who is omnipreſent, and everlaſtingly to be contemplated, the Supreme Being, the Eternal One, the Divinity worthy to be adored by the moſt praiſe-worthy of mankind, appeared here with a portion of his divine nature.

Once upon a time the illuſtrious *Ămără*, renowned amongſt men, coming here, diſcovered the place of the Supreme Being, *Bŏŏd-dhă*, in the great foreſt. The wife *Ămără* endeavoured to render the God *Bŏŏd-dhă* propitious by ſuperior ſervice; and he remained in the foreſt for the ſpace of twelve years, feeding upon roots and fruits, and ſleeping upon the bare earth; and he performed the vow of a *Moonee*, and was without tranſ-

greſſion.

greſſion. He performed acts of ſevere mortification, for he was a man of infinite reſolution, with a compaſſionate heart. One night he had a viſion, and heard a voice ſaying, "Name whatever boon thou wanteſt." *Ămără Dévă*, having heard this, was aſtoniſhed, and with due reverence replied, "Firſt, give me a viſitation, and then "grant me ſuch a boon." He had another dream in the night, and the voice ſaid, "How can there be an "apparition in the *Kăléĕ Yoog?* The ſame reward may "be obtained from the ſight of an image, or from the "worſhip of an image, as may be derived from the "immediate viſitation of a Deity." Having heard this, he cauſed an image of the Supreme Spirit *Bŏŏd-dhă* to be made, and he worſhipped it, according to the law, with perfumes, incenſes, and the like; and he thus glorified the name of that Supreme Being, the incarnation of a portion of *Veeſhnoo*: "Reverence be unto thee in "the form of *Bŏŏd-dhă!* Reverence be unto the Lord "of the Earth? Reverence be unto thee, an incarnation "of the Deity and the Eternal One! Reverence be unto "thee, O God, in the form of the God of Mercy: the "diſpeller of pain and trouble, the Lord of all things, "the Deity who overcometh the ſins of the *Kăléĕ Yoog*, "the Guardian of the Univerſe, the Emblem of Mercy "toward thoſe who ſerve thee—*O'm!* the poſſeſſor of all "things in vital form! Thou art *Brăhmă*, *Veeſhnoo*, and "*Măhéſa!* Thou art Lord of the Univerſe! Thou art, "under the proper form of all things, moveable and "immoveable, the poſſeſſor of the whole! and thus I "adore thee. Reverence be unto the Beſtower of Sal-"vation, and *Reſheekéſă*, the Ruler of the Faculties! "Reverence be unto thee *(Kéſavă)* the Deſtroyer of the "Evil Spirit *Kéſee!* O, *Dămŏrdără*, ſhew me favour! "Thou art he who reſteth upon the face of the milky "ocean, and who lyeth upon the ſerpent *Séſă*. Thou "art *Trĕĕvĭĕkrămă*, who at three ſtrides encompaſſed the "Earth; I adore thee, who art celebrated by a thouſand "names, and under various forms, in the ſhape of

"*Bŏŏd-*

"*Bŏŏd-dhă*, the God of Mercy! Be propitious, O Moſt "High God!"

Having thus worſhipped the Guardian of mankind, he became like one of the juſt. He joyfully cauſed a holy temple to be built, of a wonderful conſtruction, and therein were ſet up the divine foot of *Veeſhnoo*, for ever purifier of the ſins of mankind, the images of the *Pāndŏŏs*, and of the deſcents of *Veeſhnoo*: and in like manner of *Brāhmă*, and the reſt of the Divinities.

This place is renowned; and it is celebrated by the name of *Bhŏŏd-dhă Găyă*. The forefathers of him who ſhall perform the ceremony of the *Sradha* at this place ſhall obtain ſalvation. The great virtue of the *Sradha* performed here, is to be found in the book called *Vāyĕŏ-pŏŏrānă*: an Epitome of which hath by me been engraved upon ſtone.

Vĕĕkrămādĕĕtya was certainly a king renowned in the world. So in his court there were nine learned men, celebrated under the epithet of the *Năvă-ratnānĕĕ*, or *nine jewels*; one of whom was *Ămără Dĕvā*, who was the king's chief counſellor, a man of great genius and profound learning, and the greateſt favourite of his prince. He it certainly was who built the holy temple, which deſtroyeth ſin, in a place in *Jamboodweep*, where the mind being ſteady, it obtains its wiſhes; and in a place where it may obtain ſalvation, reputation, and enjoyment, even in the country of *Bhārătă*, and the province of *Kēēkātă*, where the place of *Bŏŏd-dhă*, purifier of the ſinful, is renowned. A crime of an hundred-fold ſhall undoubtedly be expiated from a ſight thereof, of a thouſand-fold from a touch thereof, and of a hundred thouſand-fold from worſhipping thereof. But where is the uſe of ſaying ſo much of the great virtues of this place? Even the hoſts of heaven worſhip with joyful ſervice both day and night.

That

That it may be known to learned men, that he verily erected the houſe of *Bŏŏd-dhă*, I have recorded, upon a ſtone, the authority of the place, as a ſelf-evident teſtimony, on Friday, the fourth day of the new moon, in the month of *Madhoo*, when in the ſeventh or manſion of *Gănisa*, and in the year of the *Era of Vĕĕkramādĕĕtya* 1005.

XII.

To ——— ———

SECRETARY *to the* ASIATICK SOCIETY.

SIR,

BEFORE I left *Calcutta*, a Gentleman, with whom I chanced to be diſcourſing of that ſect of people who are diſtinguiſhed from the worſhippers of *Brāhmă*, and the followers of *Mahommed*, by the appellation *Seek*, informed me that there was a conſiderable number of them ſettled in the city of *Patna*, where they had a College for teaching the tenets of their philoſophy. As *Patna* was in my way to *Banaris*, I no ſooner arrived there, than I inquired after the College, and I was preſently conducted to it; and I now requeſt you will pleaſe to lay before the Society the few Obſervations and Inquiries which a ſingle viſit of about two hours would admit of my making. If, ſuch as they are, they ſhould hereafter be found uſeful, either as a clue to guide another in his reſearches in the ſame path, or to add to ſome future account to render it more complete, my end in troubling you to lay it before the Society is fully anſwered.

I have the honour to ſubſcribe myſelf,

SIR,

Your moſt obedient humble Servant,

CHARLES WILKINS.

Banaris, 1ſt March, 1781.

Obſervations on the Seeks and their College.

I FOUND the College of the *Seeks* ſituated in one of the narrow ſtreets of *Patna*, at no very conſiderable diſtance from the Cuſtom-houſe. I was permitted to enter the outward gate; but as ſoon as I came to the ſteps which led up into the Chapel, or public hall, I was civilly accoſted by two of the Society. I aſked them if I might aſcend into the hall. They ſaid it was a place of worſhip, open to me and to all men; but, at the ſame time, intimated, that I muſt take off my ſhoes. As I conſidered this ceremony in the ſame light as uncovering my head upon entering any of our temples dedicated to the Deity, I did not heſitate to comply; and I was then politely conducted into the hall, and ſeated upon a carpet in the midſt of the aſſembly, which was ſo numerous as almoſt to fill the room. The whole building forms a ſquare of about forty feet, raiſed from the ground about ſix or eight ſteps. The hall is in the center, divided from four other apartments by wooden arches, upon pillars of the ſame materials, all neatly carved. This room is rather longer than it is broad. The floor was covered with a neat carpet, and furniſhed with ſix or ſeven low deſks, on which ſtood as many of the books of their law; and the walls, above the arches, were hung with European looking-glaſſes in gold frames, and pictures of *Muſſulman* Princes and *Hindoo* Deities. A little room, which, as you enter, is ſituated at the left-hand end of the hall, is the chancel, and is furniſhed with an altar covered with a cloth of gold, upon which was laid a round black ſhield over a long broad-ſword, and on either ſide a *chowry* of peacock's feathers, mounted in a ſilver handle. The altar was raiſed a little above the ground, in a declining poſition. Before it ſtood a low kind of throne, plated with ſilver; but rather too ſmall to be uſeful: about it were ſeveral

veral ſilver flower-pots and roſe-water bottles; and on the left hand ſtood three ſmall *urns*, which appeared to be copper, furniſhed with notches to receive the donations of the charitable. There ſtood alſo near the altar, on a low deſk, a great book, of a folio ſize, from which ſome portions are daily read in their divine ſervice. It was covered over with a blue mantle, on which were printed, in ſilver letters, ſome ſelect paſſages of their law.

After I had had a long converſation with two of the congregation, who had politely ſeated themſelves on each ſide of me on the carpet, and whom I found very intelligent, notice was given that it was noon, and the hour of divine ſervice. The congregation arranged themſelves upon the carpet, on each ſide of the hall, ſo as to leave a ſpace before the altar from end to end. The great book, deſk, and all, was brought with ſome little ceremony from the altar, and placed at the oppoſite extremity of the hall. An old man, with a reverend ſilver beard, kneeled down before the deſk with his face towards the altar; and on one ſide of him ſat a man with a ſmall drum, and two or three with cymbals. The book was now opened, and the old man began to chant to the time of the drum and the cymbals; and, at the concluſion of every verſe, moſt of the congregation joined chorus in a reſponſe, with countenances exhibiting great marks of joy. Their tones were by no means harſh; the time was quick: and I learnt that the ſubject was a Hymn in praiſe of the unity, the omnipreſence, and the omnipotence, of the Deity. I was ſingularly delighted with the geſtures of the old man: I never ſaw a countenance ſo expreſſive of inſelt joy, whilſt he turned about from one to the other, as it were, beſpeaking their aſſents to thoſe truths which his very ſoul ſeemed to be engaged in chanting forth. The Hymn being concluded, which conſiſted of about twenty verſes, the whole congregation got up, and preſented their faces

faces with joined hands towards the altar, in the attitude of prayer. A young man now ſtood forth; and, with a loud voice and diſtinct accent, ſolemnly pronounced a long prayer, or kind of liturgy, at certain periods of which all the people joined in a general reſponſe, ſaying, *Wā Gooroo!* They prayed againſt temptation; for grace to do good; for the general good of mankind; a particular bleſſing to the *Seeks;* and for the ſafety of thoſe who at that time were on their travels. This prayer was followed by a ſhort bleſſing from the old man, and an invitation to the aſſembly to partake of a friendly feaſt. The book was then cloſed, and reſtored to its place at the altar; and the people being ſeated as before, two men entered, bearing a large iron caldron, called a *curray*, juſt taken from the fire, and placed it in the center of the hall upon a low ſtool. Theſe were followed by others with five or ſix diſhes, ſome of which were of ſilver, and a large pile of leaves, ſewed together with fibres, in the form of plates. One of theſe plates was given to each of the company without diſtinction; and the diſhes being filled from the caldron, their contents were ſerved out till every one had got his ſhare. Myſelf was not forgotten; and, as I was reſolved not to give them the ſmalleſt occaſion for offence, I ate up my portion. It was a kind of ſweetmeat, of the conſiſtence of ſoft brown ſugar, compoſed of flower and ſugar mixed up with clarified butter, which is called *ghee.* Had not the *ghee* been rancid, I ſhould have reliſhed it better. We were next ſerved with a few ſugar plums: and here ended the feaſt, and the ceremonies of the day. They told me the religious part of the ceremony was daily repeated five times. I now took my leave, inviting ſome of the principal men amongſt them, who were about to return to their own country through *Banaris*, to pay me a viſit.

In the courſe of the converſation I was engaged in with the two *Seeks* before the ſervice, I was able to gather

gather the following circumſtances. That the founder of their faith was called *Nāneek Sah*, who flouriſhed about four hundred years ago at *Punjab*, and who, before his apoſtaſy, was a *Hindoo* of the *Kſhétry*, or military tribe; and that his body diſappeared as the *Hindoos* and the *Muſſulmans* were diſputing for it; for upon their removing the cloth which covered it, it was gone. That he left behind him a book, compoſed by himſelf, in verſe, and the language of *Punjab*, (but a character partly of his own invention,) which teaches the doctrines of the faith he had eſtabliſhed. That they call this character, in honour of their founder, *Gooroo-Mookhee*: "*from the mouth of the preceptor.*" That this book, of which that ſtanding near the altar, and ſeveral others in the hall, were copies, teaches that there is but one God, omnipotent and omnipreſent; filling all ſpace, and pervading all matter; and that he is to be worſhipped and invoked. That there will be a day of retribution, when virtue will be rewarded and vice puniſhed; (I forgot to aſk in what manner.) That it not only commands univerſal toleration, but forbids diſputes with thoſe of another perſuaſion. That it forbids murder, theft, and ſuch other deeds as are, by the majority of mankind, eſteemed crimes againſt ſociety; and inculcates the practice of all the virtues, but particularly an univerſal philanthropy, and a general hoſpitality to ſtrangers and travellers. This is all my ſhort viſit would permit me to learn of this book. It is a folio volume, containing about four or five hundred pages.

They told me further, that ſome years after this book of *Nāneek Sah* had been promulgated, another made its appearance, now held in almoſt as much eſteem as the former. The name of the author has eſcaped my memory; but they favoured me with an extract from the book itſelf in praiſe of the Deity. The paſſage had ſtruck my ear on my firſt entering the hall, when the ſtudents

ſtudents were all engaged in reading. From the ſimilarity of the language to the *Hindoovee*, and many *Shanſcrit* words, I was able to underſtand a good deal of it; and I hope, at ſome future period, to have the honour of laying a Tranſlation of it before the Society. They told me I might have copies of both their books, if I would be at the expenſe of tranſcribing them.

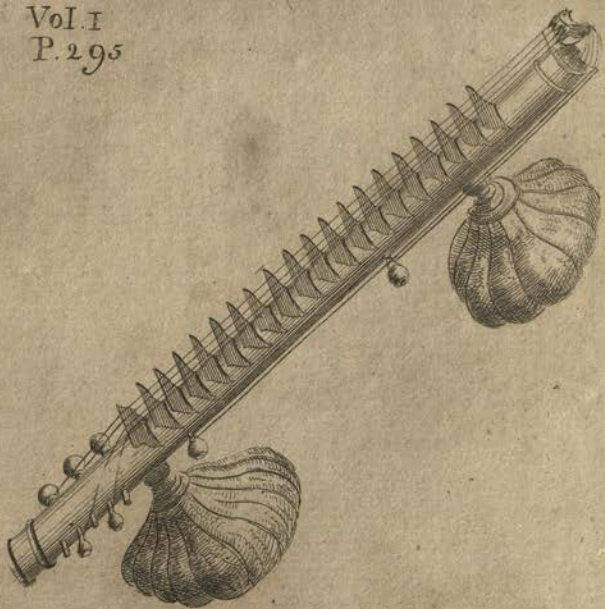
I next inquired why they were called *Seeks*, and they told me it was a word borrowed from one of the commandments of their founder, which ſignifies, "*Learn* "*thou;*" and that it was adopted to diſtinguiſh the ſect ſoon after he diſappeared. The word, as is well known, has the ſame import in the *Hindoovee*.

I aſked them what were the ceremonies uſed in admitting a proſelyte. A perſon having ſhewn a ſincere inclination to renounce his former opinions to any five or more *Seeks* aſſembled together, in any place, as well on the highway as in a houſe of worſhip, they ſend to the firſt ſhop where ſweetmeats are ſold, and procure a ſmall quantity of a particular ſort, which is very common, and, as I recollect, they call *Batāſā;* and having diluted it in pure water, they ſprinkle ſome of it on the body, and into the eyes of the convert; whilſt one of the beſt inſtructed repeats to him, in any language with which he is converſant, the chief canons of their faith, exacting from him a ſolemn promiſe to abide by them the reſt of his life. This is the whole of the ceremony. The new convert may then chooſe a *Gooroo*, or preceptor, to teach him the language of their ſcriptures, who firſt gives him the alphabet to learn, and ſo leads him on, by ſlow degrees, until he wants no further inſtruction. They offered to admit me into their Society; but I declined the honour; contenting myſelf with the alphabet; which they told me to guard as the apple of my

my eye, as it was a ſacred character. I find it differs but little from the *Dewnagur:* the number, order, and powers of the letters are exactly the ſame. The language itſelf is a mixture of *Perſian*, *Arabick*, and ſome *Shanſcrit*, grafted upon the provincial dialect of *Punjab*, which is a kind of *Hindoovee*, or, as it is vulgarly called by us, *Moors*.

AN EXTRACT

Vol. I
P. 295



Vol. I. THE VINA. P. 297

XIII.

AN EXTRACT OF A LETTER

FROM

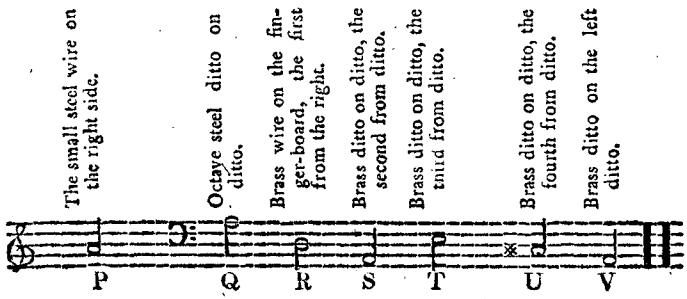
FRANCIS FOWKE, Esq.

TO THE PRESIDENT.

THE drawings of *Jeewun Shah* and the *Been* will be diſpatched in a ſmall boat to-morrow. You wiſhed to have had the two attendant muſicians in the ſame drawing with *Jeewun Shah*; but the draftſman was not equal to the perſpective of this: he would have run all the figures one into the other: and as he has ſucceeded tolerably well with the principal figures, I thought it was better to be ſure of that, eſpecially as the other figures can eaſily be added by a *European* artiſt. I have a double pleaſure in ſending you the encloſed account of the *Been*. In obliging you, I look forward to the inſtructive amuſement I ſhall ſhare with the public at large in the reſult of your reſearches into this ſubject of *Indian* muſic; and I am exceedingly happy, by furniſhing you with facts, highly neceſſary indeed, but the mere work of care and obſervation, to give you greater leiſure for the contemplation of the whole. You may abſolutely depend upon the accuracy of all that I have ſaid reſpecting the conſtruction and ſcale of this inſtrument: it has been done by meaſurement: and, with regard to the intervals, I would not depend upon my ear, but had the *Been* tuned to the harpſichord, and compared the inſtruments carefully, note by note, more than once. What I myſelf am aware of, will certainly not eſcape your penetration, that there may be a little of the bias of hypotheſis, or an opinion pretty ſtrongly eſtabliſhed, in what I have ſaid of the confined modulation of the *Indian* muſic. But it is eaſy to ſeparate my experiments and conjectures; and my prejudices cannot

cannot miſlead you; though they may poſſibly ſuggeſt a uſeful hint, as half errors often do.

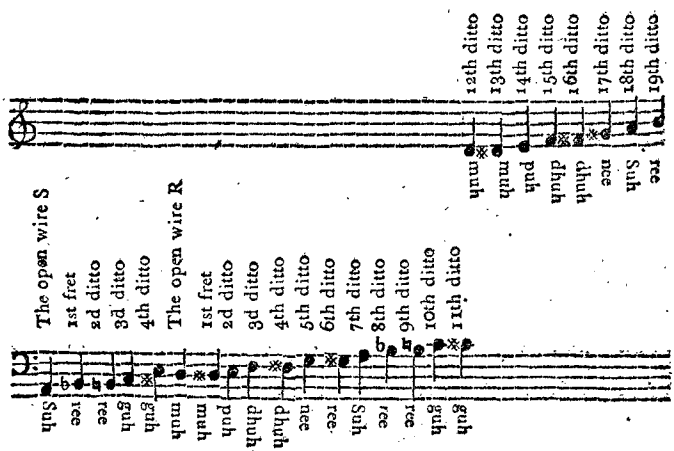
The *Been* is a fretted inſtrument of the guittar kind. The finger-board is 21 $\frac{6}{8}$ths inches long. A little beyond each end of the finger-board are two large gourds, and beyond theſe are the pegs and tail-piece which hold the wires. The whole length of the inſtrument is three feet ſeven inches. The firſt gourd is fixed at ten inches from the top, and the ſecond is about two feet 11$\frac{1}{2}$. The gourds are very large, about fourteen inches diameter, and have a round piece cut out of the bottom, about five inches diameter. The finger-board is about two inches wide. The wires are ſeven in number, and conſiſt of two ſteel ones, very cloſe together, in the right ſide; four braſs ones on the finger-board; and one braſs one on the left ſide. They are tuned in the following manner.


The small steel wire on the right side.
Octave steel ditto on ditto.
Braſs wire on the finger-board, the firſt from the right.
Braſs ditto on ditto, the ſecond from ditto.
Braſs ditto on ditto, the third from ditto.
Braſs ditto on ditto, the fourth from ditto.
Braſs ditto on the left ditto.
P
Q
R
S
T
U
V

The great ſingularity of this inſtrument is the height of the frets; that neareſt the nut is one inch $\frac{1}{8}$, and that at the other extremity about $\frac{7}{8}$ths of an inch, and the decreaſe is pretty gradual. By this means the finger never touches the finger-board itſelf. The frets are fixed on with wax by the performer himſelf, which he does intirely by ear. This was aſſerted by *Pear Cawn*, the brother of *Jeewun Shah*, who was ill at the time: but

but *Pear Cawn* is a performer very little, if at all, inferior to *Jeewun Shah*. The frets of *Pear Cawn's* inſtrument were tolerably exact. Any little difference is eaſily corrected by the preſſure of the finger. Indeed, the performers are fond, on any note that is at all long, of preſſing the ſtring very hard, and letting it return immediately to its natural tenſion, which produces a ſound ſomething like the cloſe ſhake on the violin; but not with ſo agreeable an effect; for it appears ſometimes to alter the ſound half a tone.

The frets are nineteen in number. The notes that they give will appear on the following ſcale. I have added below the names which the performer himſelf gives to the notes in his own language. It is very obſervable, that the ſemitones change their names on the ſame ſemitone as in the *European* ſcale.



On the wires R and S, which are thoſe principally uſed, there is an extent of two octaves, a whole note with all the half notes complete in the firſt octave, but the g♯ and b♭ wanting in the ſecond. The performer's apo-

logy for this was, that he could eaſily get thoſe notes by preſſing the ſtring a little hard upon the frets f ♯ and a ♯, which is very true from the height of the frets; but he aſſerted that this was no defect in his particular inſtrument, but that all *Beens* were made ſo. The wires TU are ſeldom uſed, except open.

The *Been* is held over the left ſhoulder, the upper gourd reſting on that ſhoulder, and the lower one on the right knee.

The frets are ſtopped with the left-hand; the firſt and ſecond fingers are principally uſed. The little finger of the hand is ſometimes uſed to ſtrike the note V. The third finger is ſeldom uſed, the hand ſhifting up and down the finger-board with great rapidity. The fingers of the right hand are uſed to ſtrike the ſtrings of this hand; the third finger is never uſed. The two firſt fingers ſtrike the wires on the finger-board, and the little finger ſtrikes the two wires. The two firſt fingers of this hand are defended by a piece of wire put on the tops of them in the manner of a thimble: when the performer plays ſtrong, this cauſes a very jarring diſagreeable ſound; whereas, when he plays ſoftly, the tone of the inſtrument is remarkably pleaſing.

The ſtyle of muſic on this inſtrument is in general that of great execution. I could hardly ever diſcover any regular air or ſubject. The muſick ſeems to conſiſt of a number of detached paſſages, ſome very regular in their aſcent and deſcent; and thoſe that are played ſoftly, are moſt of them both uncommon and pleaſing.

The open wires are ſtruck, from time to time, in a manner

manner that, I think, prepares the ear for a change of modulation, to which the uncommonly full and fine tones of theſe notes greatly contribute; but the ear is, I think, always diſappointed: and if there is ever any tranſition from the principal key, I am inclined to think it is very ſhort. Were there any other circumſtances reſpecting the *Indian* muſic, which led to ſuppoſe that it has, at ſome period, been much ſuperior to the preſent practice, the ſtyle, ſcale and antiquity of this inſtrument, would, I think, greatly confirm the ſuppoſition.

XIV.

A DESCRIPTION

OF THE

MÁHWAH TREE.

By Lieut. CHARLES HAMILTON.

THERE is a very curious and uſeful tree, called, by the natives of *Bahar*, and the neighbouring countries, the *Máhwah*, or *Máwee*: but the *Sanſcrit* name is *Madhúca*, or *Madhudruma*.

It is of the claſs of the Polyandria Monogynia of *Linnæus*, but of a genus not deſcribed by him.

The *calyx* is monophyllous, quadrifid, half divided, and imbricated in its divided part; the two oppoſite and *outer* covering, in part, the two oppoſite and *inner* parts.

The *corolla* is monopetalous, having an inflated tube for its lower part, of near an inch long, thick, fleſhy, and of a cream colour: from this ariſe nine ſmall leaves, as it were, like petals, from a calyx, that are imbricated and twiſted one over the other, from right to left, claſping the lower part of the ſtyle in a point; by which they ſeem to ſerve, in ſome reſpect, like forceps, to detach the whole *corolla* at the ſeaſon of its dropping.

Vol. I. THE MADHUCA P. 300.

There are no filaments: but the *antheræ*, which are in number moſt commonly twenty-ſix, long, ſcabrous, and ſpear-headed, are inſerted in rows, on the inſide and upper part of the tube of the *corolla*.

The *ſtyle* is long, round, and tapering, and projects about an inch beyond the *corolla*. It is ſucceeded by a drupe, with a thick pericarpium, bilocular, containing two ſeeds or kernels, covered with a dark brown ſkin. There are often, however, *three* of theſe in three ſeparate diviſions.

The flowers riſe in bunches from the extremities of the ſmaller branches, and have each a pedicle of about an inch and a half long. Theſe are moſtly turned downwards, whence the corollas more eaſily drop off.

The tree, when full grown, is about the ſize of a common *mango-tree*, with a buſhy head, and oval leaves, a little pointed. Its roots ſpreading horizontally, are ſunk but little in the earth. The trunk, which is often of a conſiderable thickneſs, riſes ſeldom to any great height, without giving off branches: it is, however, not uncommon to ſee it ſhoot up clear to the length of eight or ten feet. The wood itſelf is moderately hard, fine grained, and of a reddiſh colour.

By inciſion, the tree affords a reſinous *gum* from the bark.

The flowers are of a nature very extraordinary, differing eſſentially from thoſe of any other plant with which I am acquainted, as they have not in any reſpect the uſual appearance of ſuch, but rather reſemble *berries*; and I, like many others, had long conceived them to be the *fruit* of the *Máhwah*. The tree drops its leaves in the month of February; and early in March theſe flowers

flowers begin to come in cluſters of thirty, forty, or fifty, from the extremity of every ſmall branch; and from this period till the latter end of April, as the flowers come to maturity, (for they never open or expand,) they continue falling off, with their *antheræ*, in the mornings, a little after ſun-riſe, when they are gathered; and afterwards dried by an expoſure of a few days in the ſun. When thus prepared, they very much reſemble a dried *grape*, both in taſte and flavour.

Immediately after the flowers drop off, freſh ſhoots are made for the new leaves, which ſoon make their appearance, coming preſently to their full growth.

The fruit *(properly* ſo called) is of two ſorts in ſhape; the one reſembling a ſmall *walnut*; the other ſomewhat larger, and pointed. It is ripe towards the middle of May, and continues dropping from the tree till the whole fall; which is generally about the beginning, or towards the middle, of June. The outer covering, or *pericarpium*, which is of a ſoft texture, commonly burſts in the fall, ſo that the ſeeds are very eaſily ſqueezed out of it. The ſeeds are ſomewhat of the ſhape, but longer than an *olive*.

Theſe ſeeds are replete with a thick *oil*, of the conſiſtence of *butter* or *ghee*, which is obtained by expreſſion.

From this deſcription it may eaſily be conceived that the *Máhwah-tree*, and its productions, are of ſingular and general uſe, eſpecially in thoſe dry and barren countries which, from the nature of their ſituation, are not ſo well calculated for producing in plenty, or perfection, the other neceſſaries of life.

The

The *corolla*, or flowers, after being dried as before deſcribed, are eaten by the natives raw, or dreſſed with their *curries*; and, when even ſimply boiled with rice, they afford a ſtrengthening and wholeſome nouriſhment. They are, indeed, often applied to a leſs laudable purpoſe; for being fomented, they yield, by diſtillation, a ſtrong ſpirit, which the people here ſell ſo very cheap, that for *one pice* (about a halfpenny) may be purchaſed no leſs than a *cutcha ſeer*, (above a pint *Engliſh*,) with which any man may get completely drunk. Theſe flowers make an article of trade; being exported from this country to *Patna*, and elſewhere, in no inconſiderable quantities.

The *oil* yielded by the fruit, as before-mentioned, reſembles *ghee* ſo much, that, being cheaper, the natives often mix it with that commodity. They uſe it, the ſame as *ghee*, in their victuals, and in the compoſition of ſome ſorts of ſweetmeats; and burn it in their lamps. It is alſo regarded as a ſalutary remedy, applied exteriorly to wounds, and all cutaneous eruptions. It is, at firſt, of the conſiſtence of common *oil*, but ſoon coagulates. After being kept for ſome time, it acquires a bitteriſh taſte and rancid ſmell, which renders it ſomewhat leſs agreeable as an article of food; but this is an inconvenience, which, by the *oil* being properly clarified, and prepared at firſt, might be perhaps avoided. This *oil* is alſo exported, both in its adulterated and original ſtate, to *Patna*, and other parts of the low country.

'I do not know any purpoſe to which the *gum* has ever been applied; but if found, upon trial, to be of uſe, it might be collected in large quantities. The beſt ſeaſons for this would be in the months of March and April, about the time the flowers came out, when the tree

tree ſeems to be moſt replete with it. Such an operation, indeed, would probably diminiſh its produce in the fruit and flower; but, where it was ſufficiently cultivated, the loſs in thoſe could be but little felt.

The wood, from what has been already ſaid of it, cannot be expected to be often had in beams of any conſiderable length, ſo as to make it ſo very uſeful in building, as it would otherwiſe be, from its not being liable to be eat by the white ants. Mr. *Keir*, however, tells me that, when he was at *Chowſee*, (a village upon the *Caramnaſſa*, near *Buxar*,) he had beams of it, which were, to the beſt of his remembrance, above twenty feet long. But in many other reſpects it is a moſt uſeful wood; and, as it is tough, and of a ſtrong texture, it might, perhaps, be employed to advantage in ſhip-building, in which caſe, if properly cultivated in many grounds that ſeem well adapted for it, and fit for little elſe, it might thus in time become a valuable article in that branch at *Calcutta*, whither it could eaſily be tranſported during the rainy ſeaſon, from almoſt any part of theſe countries, by ſeveral rivers that are then ſufficiently full to float it down.

The tree, I am told, will grow in the moſt barren ground, even amongſt ſtones and gravel, where there is the leaſt appearance of a ſoil; and it ſeems to deſtroy all the ſmaller trees and bruſhwood about it; yet it does not refuſe a *rich* ſoil either: Mr. *Keir* having obſerved to me, that the few he had ſeen about *Buxar*, where it is certainly very good, were both taller, and ſeemed to thrive much better, than any he had ever met with in *Ramgur*. It does not require much *moiſture*, ſeeming to produce nearly as well in the drieſt as in moſt favorable years; and in every ſituation; and is therefore admirably fitted for the convenience of the inhabitants of theſe hilly

hilly countries, which are peculiarly ſubject to long and ſevere droughts during the hot months.

Yet, notwithſtanding its utility, and the immenſe quantity of ground that ſeems ſo well adapted to the growth of it, both here, and in the neighbouring provinces of *Catak*, *Pacheet*, *Rotas*, &c. (the greateſt part of which, indeed, ſeems fit for no other uſeful production,) I have myſelf never obſerved, nor can I find any of my acquaintance who ever have remarked, one ſingle tree in its infant ſtate. We can ſee, every where, *full grown* trees in great abundance; but never meeting with any young plants, both I, and all whom I have ſpoken to on the ſubject, are at ſome loſs to conceive how they ſhould have come here. Neither can the country people themſelves, of whom I have enquired, give any rational account of this: although it appears pretty evident that numbers of them muſt have been cultivated ſome time or other, every village having many of them growing about it.

This is a circumſtance which ſufficiently marks the true character of the lower order of natives in their moſt ſupine indolence and ſloth; owing chiefly, perhaps, to the ignorant and ſtupid rapacity of their *Rajahs*, *Zimeendars*, and other *landholders*, and their total inattention to the welfare of thoſe dejected wretches, from whom they derive their conſequence and power. Of their baſe indifference to the intereſts of thoſe whom they thus affect to hold beneath their regard, many ſtriking inſtances occurred to me in the courſe of my enquiries upon this very ſubject; and it was not long ago that, aſking ſome queſtions concerning the *Mahwah* of a *Zimeendar* in this neighbourhood, he anſwered, that "it was the food of the *poor* people, and how ſhould "*he* know any thing about it!"

It

It was this ſtrange neglect of the culture of it, and a knowledge of its uſefulneſs, which firſt led me to enquire into the nature of this tree, from which the bulk of the people hereabouts already draw ſuch great benefits; in order to know whether they might not increaſe it without any great trouble to themſelves; and whether thereby the revenue might not alſo be increaſed, and a certain proviſion be made againſt famines, from which the natives often ſuffer ſeverely in theſe higher diſtricts.

To effect this, it would be neceſſary to give the *ryots* every poſſible encouragement to raiſe the tree from the ſeeds; but as the torpid apathy of theſe people, whether natural or acquired, will ever prevent their being moved to any exertion by a proſpect, however alluring, of *diſtant* advantage, I apprehend the only way of bringing this about, would be making the planting and raiſing of a certain number of *Máhwahs* (in proportion to the value of the tenure) an article in their *Kabuleeats*, or agreements.

The tree, as has been already obſerved, will grow almoſt any where. It ought to be ſown about the beginning of the rains, either in beds (to be afterwards tranſplanted) or at about thirty or forty feet diſtance, in the ground deſigned for it. It is ſaid that, in ſeven years, the trees will give flowers and fruit; in ten, they will yield about half their common produce; and that in twenty years they come to their full growth; after which, if my information be good, they will laſt near one hundred years. This account, I acknowledge, muſt neceſſarily be very vague and uncertain, as I never have met with a ſingle perſon who appeared to have had either opportunity or inclination to obſerve its progreſs. Such, however, is what the country people ſay of it.

I am

I am told that a good tree will eaſily give four *puckha maunds* (about three hundred weight averdupois) of dried flowers, which will ſell here for about two *rupees;* and of ſeeds it will afford about two *maunds;* and this of oil will yield twenty-ſix *ſeers puckha* weight, (near 60*lb.*) which, in a year like this, when oil is cheap, will ſell at this place for two *rupees* more. It is to be obſerved, however, that *every* tree will not give ſo much; neither are the flowers and *oil* ſo clear in any part of the hills as at *Chatra;* but, allowing only *half* of this, or leſs, to be the product of each tree, (though it might be rendered ſtill much greater by the very leaſt care and induſtry in the cultivation of it,) within the ſpace of twenty years, a ſubſiſtence might be raiſed to the inhabitants, and a conſiderable revenue to the proprietors of the lands, throughout an immenſe tract of country; the greateſt part of which, in its preſent ſtate, is little better than a barren waſte, and cannot pay one ſingle *anna* to the *Zimeendar* or the Government. That ſuch an advantage might be derived from it, may be proved by the moſt moderate calculation; for, ſuppoſing the trees to be ſown at about forty feet diſtance from each other, on each *begah* (about the third of an acre) might ſtand eight trees; and, ſuppoſing the product of each tree to be only *half a rupee*, there would be *four rupees* of *annual value* on a *begah* of ground; half of which going to the proprietor, it would thus give a far better rent than the generality of the beſt grounds in theſe parts; and the labourer would have a produce, without any other trouble than that of ſowing the ſeed, and fencing the ground whilſt the trees were young; and that of annually gathering the flowers, and preparing the *oil*, when they arrive at their proper ſize; and they would probably begin to give a produce within leſs than ten years after the ſowing.

As this tree will yield nearly its uſual quantity of flowers and fruit in ſeaſons when, for want of rain

every other crop fails, if thus cultivated, it would afford the inhabitants a ſure and certain reſource, under the moſt dreadful, and what has hitherto been, to them, the moſt deſtructive, of all calamities, famine. It is well known that the rice, and other ſorts of grain, which form the chief part of their ſuſtenance, require a conſiderable degree of moiſture to bring them to perfection. An unuſually dry ſeaſon deſtroys the harveſt in thoſe articles, and reduces the *ryots* in general to the utmoſt miſery; a predicament into which they could hardly fall, even in the ſevereſt dearth of grain, whilſt they had plenty of the flowers and fruit of the *Máhwah* to depend upon.

It may be here not improper to obſerve, that Mr. *Keir* is now ſowing a few acres with the ſeed of this uſeful tree, and means to fence it; which may, perhaps, in time, tempt others to follow ſo good an example.

Chatra, Ramgur, July 6, 1785.

XV.

OF THE

METHOD OF DISTILLING

AS PRACTISED BY THE NATIVES AT CHATRA IN RAMGUR, AND IN THE OTHER PROVINCES, PERHAPS WITH BUT LITTLE VARIATION.

BY ARCHIBALD KEIR, ESQ.

THE body of the ſtill they uſe is a common, large, unglazed, earthern water jar, nearly globular, of about twenty-five inches diameter at the wideſt part of it, and twenty-two inches deep to the neck, which neck riſes two inches more, and is eleven inches wide in the opening. Such, at leaſt, was the ſize of the one I meaſured; which they filled about a half with fomented *Máhwah flowers*, that ſwam in the liquor to be diſtilled.

The jar they placed in a furnace, not the moſt artificial, though ſeemingly not ill adapted to give a great heat with but very little fuel. This they made by digging a round hole in the ground, about twenty inches wide, and full three feet deep; cutting an opening in the front, ſloping down to the bottom, on the ſides perpendicular, of about nine inches wide, and fifteen long, reckoning from the circle where the jar was to come, to ſerve to throw in the wood at, and for a paſſage to the air. On the ſide too they cut another ſmall opening, of about four inches by three; the jar when placed, forming one ſide of it, to ſerve as a chimney for the ſmoke to go out at. The bottom of the earth was rounded up like a cup. Having then placed the jar in this, as far as it would go down, they covered it above,

all

all round, with clay, except at the two openings, till within about a fifth of its height; when their furnace was completed.

In this way I reckon there was a full third of the ſurface of the body of the ſtill, or jar, expoſed to the flame, when the fire came to be lighted; and its bottom, not reaching to within two feet of where the fuel was, left a capacious hollow between them, whence the wood, that was ſhort and dry, when lighted, being moſtly converted into flame, and circulating on ſo great a ſurface of the ſtill, gave a much ſtronger heat than could elſe have been produced from ſo very little fuel; a conſideration well worth the attention of a manufacturer, in our country more eſpecially, where firing is ſo dear. There, indeed, and particularly as coal is uſed, it would be better, no doubt, to have a grate, and that the air ſhould enter from below. As to the benefit reſulting from the body of the ſtill being of earthen-ware, I am not quite ſo clear in it. Yet, as lighter ſubſtances are well known to tranſmit heat more gradually and ſlowly than the more ſolid, ſuch as metals, may not earthern veſſels, on this account, be leſs apt to burn their contents, ſo as to communicate an empyreumatick taſte and ſmell to the liquor that is diſtilled, ſo often, and ſo juſtly, complained of with us? At any rate, in this country, where pots are made ſo cheap, I ſhould think them greatly preferable, as, at leaſt, much leſs expenſive than thoſe which the Gentlemen engaged in this manufacture moſt commonly employ: though of this they are beſt able to judge.

Having thus made their furnace, and placed the body of the ſtill in it, as above deſcribed, they to this luted on, with moiſtened clay, to its neck, at the opening, what they here call an *adkur;* forming with it, at once, a cover for the body of the ſtill, with a ſuitable perforation in it to let the vapour riſe through, and the under part of the alembick. The *adkur* was made

made with two earthen pans, having round holes in their middles, of about four inches diameter; and, their bottoms being turned oppoſite the one to the other, they were cemented together with clay; forming a neck of junction thus of about three inches, with the ſmall riſing on the upper pan. The lowermoſt of theſe was more ſhallow, and about eleven inches wide, ſo as to cover exactly the opening at the neck of the jar, to which they luted it on with clay. The upper and oppoſite of theſe was about four inches deep, and fourteen inches wide, with a ledge round its perforation in the middle, riſing, as is already ſaid, from the inner ſide of the neck, of about half an inch high, by which a gutter was formed to collect the condenſed ſpirit as it fell down; and from this there was a hole in the pan to let it run off by; to which hole they occaſionally luted on a ſmall hollow *bamboo*, of about two feet and a half in length, to convey it to the receiver below. The upper pan had alſo another hole in it, of about an inch ſquare, at near a quarter of its circumference from the one below juſt ſpoken of, that ſerved to let off the water employed in cooling; as ſhall be mentioned preſently.

Their *adkur* being thus fitted to the jar, they completed the alembick by taking a copper pot, ſuch as we uſe in our kitchens, of about five inches deep, eight wide at the mouth, and ten at the bottom, which was rather flattiſh; and turning its mouth downward, over the opening in the *adkur*, luted it down on the inſide of the jar with clay.

For their cooler they raiſed a ſeat, cloſe upon, and at the back part of the furnace, about a foot higher than the bottom of the copper pot. On this they placed a two or three gallon pot, with a round hole, of about half an inch in the ſide of it; and to this hole, before

before they lighted their fire, they luted on a ſhort tube of a like bore; placing the pot, and directing its ſpout ſo as that, when filled with water, it threw a conſtant and uniform ſtream of it, from about a foot high, or near the center of the bottom of the copper-pot, where it was diffuſed pretty completely over its whole ſurface; and the water falling down into the upper part of the pan of the *adkur*, it thence was conveyed through the ſquare hole, already mentioned, by a trough luted on to it for that purpoſe, to a cooling receiver a few feet from the furnace; from which they took it up again to ſupply the upper pot, as occaſion required.

As their ſtock of water, however, in this ſort of circulation, was much ſmaller than it ſeemingly ought to have been, being ſcarcely more than ſix or eight gallons, it too ſoon became hot; yet, in ſpite of this diſadvantage, that ſo eaſily might have been remedied and the ſhortneſs of the conducting tube, which had nothing but the common air to cool it, there ran a ſtream of liquor from the ſtill; and but very little vapour riſing from it; beyond any thing I had ever ſeen from ſtills of a much larger ſize, fitted with a worm and cooler. In about three hours time, indeed, from their lighting of the fire, they drew off full fifteen bottles of ſpirit; which is more by a great deal, I believe, than could have been done in our way from a ſtill of twice the dimenſions.

The convenience of a worm and cooler, which are no ſmall expence either, I have myſelf often experienced; and if theſe could be avoided in ſo ſimple a way that might eaſily be improved, the hints that are here offered may be of ſome uſe. The thin metal head is certainly well adapted, I think, to tranſmit the heat to the water, which is conſtantly renewed; and which if cold, as it ought to be, muſt abſorb the faſteſt poſſible: whereas, in our way, the water being confined

in a tub, that, from the nature of its porous ſubſtance, in a great degree rather retains than lets the heats paſs away, it ſoon accumulates in it, and becomes very hot; and, though renewed pretty often, never anſwers the purpoſe of cooling the vapour in the worm ſo expeditiouſly and effectually, as is done by their more ſimple and leſs expenſive apparatus. In this country, more eſpecially, where labour and earthen-wares are ſo cheap, for as many *rupees*, and leſs, twenty furnaces, with ſtills, and every thing belonging to them, independent of the copper-pots, might very well be erected, that would yield above a hundred gallons of ſpirits a day; allowing each ſtill to be worked only twice. So very cheap, indeed, is arrack here, to the great comfort of my miners, and of many thoughtleſs people beſide, that for one ſingle *peyſa* (not two farthings ſterling) they can get a whole *cutcha-ſeer* of it in the *bazar*, or above a full *Engliſh* pint, and enough to make them completely intoxicated; objects often painful to be ſeen.

Of the ſuperior excellence of metal in giving out heat from itſelf, and from vapour contained in it, we have a very clear proof in what is daily performed on the cylinder of the ſteam engine: for cold water being thrown on it when loaded, the contained vapour is conſtantly condenſed; whence, on a vacuum being thus formed, and the weight of the atmoſphere acting on the ſurface of the piſton attached to the arm of the balance, it is made to deſcend, and to raiſe the other arm that is fixed to the pump; while this being ſomewhat heavier, immediately ſinks again, which carries up the piſton, while the cylinder is again filled; and thus by alternately cooling and filling it, is the machine kept in motion; the power exerted in raiſing the pump-arm being always in proportion to the diameter of the cylinder, or to the ſurface of the piſton, which is exactly fitted to it, and on which the preſſure acts.

The contrivance too, of having the under part of the alembick, where the condenſed vapour is collected, or upper part of what they call the *adkur*, of earthen-ware, of ſo great a thickneſs, and of courſe at ſo great a diſtance from the heat in the body of the ſtill, is well imagined to keep the ſpirits the cooleſt poſſible, when collected, and running off.

By thus cooling and condenſing the vapour, likewiſe, ſo ſuddenly as it riſes, there is in a great meaſure a conſtant vacuum made, or as much as poſſibly can be; but, that both ſteam ariſes faſter, and that water boils with much leſs heat, when the preſſure is taken away from its ſurface, is an axiom in chemiſtry too well known to need any illuſtration; it boiling in vacuum, when the heat is only ninety or ninety-five by Farenheit's thermometer; whereas in the open air, under the preſſure of the atmoſphere, it requires no leſs than that of two hundred and twelve ere it can be brought to the boiling point.

I muſt further obſerve, that the ſuperior excellence of condenſing the vapour ſo effectually and ſpeedily in the alembick, to our method of doing it in a worm and cooler, is greatly on the ſide of the former; both from the reaſons I have already adduced, and becauſe of the ſmall ſtream of vapour that can be only forced into the worm, where it is condenſed gradually as it deſcends; but, above all, from the nature of vapour itſelf, with reſpect to the heat contained in it, which of late has been proved, by the very ingenious Dr. *Black*, to be greater by far than, before his diſcoveries, was imagined. For vapour he has ſhewn to be in the ſtate of a new fluid, where water is diſſolved by heat; with the aſſiſtance, perhaps, if I may be allowed a conjecture, of the air which it contains: and all fluids, as he has clearly demonſtrated, on their becoming ſuch, abſorb

a certain quantity of heat, which becomes what he very properly calls latent heat; it being heat not appearing either to the ſenſes, or to the thermometer, while they remain in that liquid ſtate; but ſhewing itſelf immediately by its effects on whatever is near it, upon their changing their form from fluid to ſolid; as on water becoming ice, or metals fixing, and the like. In the ſolution of ſalts, alſo, there is an abſorption of heat, as we daily experience in the cooling of our liquors by diſſolving ſalt-petre in water; and this he has found to be the caſe with water itſelf, and other fluids, when paſſing into a ſtate of vapour by boiling. From the moſt accurate and judicious experiments, indeed, he infers, and with the greateſt appearance of truth, that the heat thus concealed in vapour raiſed by boiling, from any given bulk of water, would be fully ſufficient, if collected in a piece of iron of the like ſize, to make it perfectly red hot. What then muſt be the effect of ſo much heat communicated in our way of diſtilling to the worm, and to the water in the tub, will be ſufficiently evident from what has been ſaid to prove, I think, that we have hitherto employed a worſe and more defective method than we might have done with reſpect to cooling at leaſt, both in the making of ſpirits, and in other diſtillations of the like kind, where a ſimilar mode is adopted.

The poor ignorant *Indian*, indeed, while he with wonder ſurveys the vaſt apparatus of *European* diſtillers, in their immenſe large ſtills, worms, tubs, and expenſive furnaces, and finds that ſpirits thus made by them are more valued, and ſell much dearer than his own, may very naturally conclude, and will have his competitors join with him in opinion, that this muſt alone ſurely be owing to their better and more judicious manner of diſtilling with all thoſe ingenious and expenſive contrivances, which he can no ways emulate; but in this, it would appear, they are both equally miſtaken;

imputing the effects, which need not be controverted, perhaps, to a cauſe from which they by no means proceed; the ſuperiority of their ſpirits not at all ariſing from the ſuperior excellence of theſe ſtills and furnaces, nor from their better mode of conducting the diſtillation in any reſpect; but chiefly rather from their greater ſkill and care in the right choice, and proper management, of the materials they employ in fermentation; and, above all, as I apprehend, from the vaſt convenience they have in caſks, by which, and from their abilities in point of ſtock, they are enabled, and do, in fact, in general, keep their ſpirits for a certain time, whence they are mellowed, and improved ſurpriſingly both in taſte and ſalubrity.

With reſpect to the latter improvement, I mention it more particularly here; and the more willingly alſo, as in general it ſeems to have been but too little attended to, where a due attention to it might be of the greateſt uſe. For of all things that have been found grateful to the human palate, there was none ever uſed, I believe, more hurtful to the body, and to the nerves eſpecially, than freſh drawn ardent ſpirits; and this owing evidently to the principle of inflammability, of which, with water, they are moſtly made up; being then, in a more looſe and detached ſtate, leſs aſſimilated with the other principles than it afterwards becomes with time. By time, indeed, it is gradually not only more aſſimilated, but at length changes its nature altogether; ſo as to become, what was at firſt ſo pernicious, a benign, cooling liquor. When the ſpirit is ſtrong, the change, it is true, goes on more ſlow and imperceptibly; yet, as a partial alteration is only wanted to mellow it for uſe, a few years keeping would be ſufficient to anſwer the purpoſe here; and whether or no it could be poſſible to prevent any other from being ſold than that which had been kept a certain time, is well worth the conſideration of the Legiſlature.

That

That the great noxious quality of freſh drawn ſpirits is chiefly owing to the cauſe I have aſſigned, a little attention, and comparing of the effects that are uniformly produced by the principle of inflammability, wherever it is met with in a looſe and weakly combined ſtate, as it is in them, will eaſily convince us of: whereas, when fully aſſimilated either in ſpirits, or with any other body, it becomes entirely inert, and uſeful, more or leſs, either for food or phyſick, according to what it happens to be united with. Thus we find it in putrid animal ſubſtances, where it lately formed part of a healthy body, being now detached, or but weakly united with air, exhibiting a moſt offenſive and pernicious poiſon: though this abſorbed again by a living plant, is preſently changed into good and wholeſome nouriſhment: to the vegetable immediately, and to any animal who may afterwards chooſe to eat it. In like manner ſulphur, which is a compound of this principle alone, united to a pure acid, the moſt deſtructive to all animal and vegetable ſubſtances, yet, it being here perfectly inert alſo, may be taken into the body with ſafety: when, if looſened either by heat, or by an alkaline ſalt uniting with the acid, its noxious quality is preſently made perceivable to whoever comes within its reach.

Many other inſtances of a like nature might eaſily be added, and ſome too more appoſite, perhaps, than thoſe I have here mentioned; but every one's own experience, with what I have already ſaid, will ſufficiently evince the propriety and utility of putting an entire ſtop, if poſſible, to the ſale of what ought to be ſo juſtly prohibited: and this, in its conſequences, may even help to lead to other more effectual means of correcting, in a great meaſure, the cruel abuſe of ſpirits in general, that has been long ſo loudly and ſo juſtly complained of amongſt the ſoldiers, lower *Europeans*, and our ſervants in this country; where the very worſt, and, indeed,

deed, poiſonous, ſort of them is daily ſold at ſo very cheap a rate.

All I need further add with reſpect to diſtillation, and on the ſuperior advantages in the mode of conducting it here, to that we have been in uſe to employ, for the raiſing of ſpirits, ſimple waters, and the like, is only to obſerve, I have no ſort of doubt, but that the intelligent chemical operators at home, if ever they ſhould get a hint of it, will make no manner of ſcruple to uſe it alſo, and to improve upon it greatly by a few ingenious contrivances, which their knowledge and experience will ſo eaſily ſuggeſt. The principles on which it ſeems founded, indeed, eſpecially with regard to their way of cooling, are ſo ſtriking and juſt, that in many other diſtillations beſides thoſe of ſpirits and waters, they may be employed, I apprehend, with very great profit and advantage. I ſhall now, however, confine myſelf to mention only the benefit that may reſult from a like proceſs in the raiſing of the finer aromaticks, while the heat contrived, as in our way, beſides impeding the diſtillation, muſt, from its long action on ſuch ſubtile bodies, probably injure them greatly in the eſſential quality on which their excellence depends: and upon this very account I am apt to imagine, that the greater quantity obtained, and the ſuperior quality of the *oil* of *roſes* made in this country, to that made from *roſes* with us, is owing chiefly, if not entirely, to their better and more judicious manner of extracting it here. For with us, the ſtill, being made of metal, may, in the firſt inſtance, impart too great and too ſudden a degree of heat; and next, the *oil* continuing ſo long in the vapour, and that much compreſſed, may, in ſo delicate a ſubject, not only entirely almoſt unite it with the water, ſo as to render the ſeparation impracticable, but may at the ſame time alter its eſſence ſo completely, as that it can no longer appear in the ſtate it otherwiſe might have been found in, had the operation been better

ter conducted, or in the way they do here. A very few trials, however, would much better certify this, than all I can poſſibly ſay on the ſubject, or, in fact, than all the reaſoning in the world. Therefore, as to my own particular opinion of the flavour and quality of the *roſes* at home being equal, if not ſuperior, to that of thoſe in this country, I may be entirely ſilent; the rules and reaſoning in chemiſtry, though ſerving greatly to enlarge and improve our underſtanding, being what of themſelves can never be depended upon, till confirmed by facts and experiments; where many things often turn out very different from what, from our beſt and moſt plauſible arguments, we had the greateſt reaſon to expect. Or, if it ſhould be found to be really true, what I have often heard aſſerted, by thoſe however who had it only from others, but not of their own particular knowledge, that, in diſtilling their *oil* of *roſes* at the places where they make it the beſt, they uſe alſo with their *roſes*, *ſandal wood*, and ſome other aromaticks, no *roſes* whatſoever, it is plain, could ever of themſelves be made to afford a like *oil;* nor without ſuch an addition as they employ. A circumſtance, by the bye, that might poſſibly eaſily be certified by ſome one of the many ingenious correſpondents of the Society who may happen to reſide where it is made: and a knowledge of the real truth of it would certainly be of uſe.

Chatra, December 24, 1786.

XVI.

A METHOD OF CALCULATING THE *MOON's PARALLAXES* IN LATITUDE AND LONGITUDE.

By Mr. REUBEN BURROW.

IN the Nautical Almanack for 1781, among other Problems publiſhed by authority of the Board of Longitude, there is one for calculating the Place of the Nonageſimal Degree; which is expreſsly recommended to Aſtronomers as "ſuperior to all other Methods for "calculating Eclipſes of the Sun, and Occultations of "the Stars." Now, as a conſiderable part of that method is erroneous, and particularly in South Latitudes, and between the Tropics, (which include the moſt of *India*,) the error may therefore be of conſequence; and the more ſo, as it is publiſhed under the ſanction of Dr. *Maſkelyne*, the Aſtronomer Royal. I have, therefore, taken the liberty of giving the following rule to ſupply its place; and, in imitation of the methods of the *Hindoos*, have endeavoured to expreſs it ſo plainly, that any perſon may calculate by it without knowing much of the ſubject.

PROBLEM.

Given the apparent time at any given place; to find the longitude and altitude of the nonageſimal degree, and alſo the parallaxes in latitude and longitude.

1. Turn the difference of longitude from *Greenwich* into time, and add it to the apparent time, if the place be to the weſt

weſt of *Greenwich*; but ſubtract if the place be to the eaſt; and the ſum, or remainder, will be the apparent time at *Greenwich*.

2. To this time calculate the ſun's right aſcenſion in time, and add it to the apparent time at the given place; the ſum is the right aſcenſion of the meridian in time.

3. From the latitude of the place by obſervation, ſubtract the correction taken from page LXXV of *Mayer's* Tables; the remainder is the latitude in the ſpheroid.

4. Call the right aſcenſion of the meridian in degrees AR; and, if the right aſcenſion of the meridian be

Between		then		isan			is the
0° & 90°		in N.	AR + 90	Arc	but	90—AR	Arc
90 & 270		Lat.	270—AR	A.	in S.	AR—90	A.
270 & 360			AR—270		Lat.	450—AR	

5. Let half the ſum of the colatitude of the place, and the obliquity of the ecliptic, be called C, and half their difference D; then add the ſecant of C, the coſine of D, and the cotangent of half A, together; the ſum (rejecting twice radius) is the tangent of an arc M: then add the coſecant of C, the ſine of D, and the cotangent of half A, together; the ſum (rejecting twice radius) is the tangent of an arc N: then if the colatitude of the place be greater than the obliquity of the ecliptic, the ſum of M and N is an angle, whoſe complement call B; but if the colatitude be leſs than the obliquity, let the complement of the difference of M and N be called B.

6. Add

6. Add the ſecant of B, the fine of A, and the coſine of the latitude of the place, together; the ſum (rejecting twice radius) is the ſine of the altitude of the nonageſimal degree.

7. Add the tangent of the latitude to the tangent of the obliquity of the ecliptic; the ſum is the ſine of an angle, which call X.

8. When the right aſcenſion of the meridian is

Between { 360°—X& 90° / 90°&180°+X / 180°+X&270° / 270°&360°—X } in N. Lat. { or between } { X & 90° / 90°&180°—X / 180°—X&270° / 270° & X } in S. Lat. } then { B / 180°—B / 180°+B / 360°—B } is the Lon.

of the nonageſimal degree.

9. Add the moon's latitude to 90° when it is of a contrary name to the latitude of the place; but ſubtract it from 90° when it is of the ſame name; the ſum or remainder is the moon's polar diſtance. Alſo take the difference between the moon's longitude and the longitude of the nonageſimal degree, which difference call P: alſo let half the ſum of the moon's polar diſtance and altitude of the nonageſimal degree be called Q, and half their difference R.

10. Add the ſecant of Q, the coſine of R, and the cotangent of half P, together; the ſum is the tangent of an arc *m*: alſo add the coſecant of Q, the fine of R, and the cotangent of half P together; the ſum is the tangent of an arc *n*.

11. If

11. If the altitude of the nonageſimal degree be greater than the moon's polar diſtance, take the ſum of the arcs *m* and *n* for the parallactic angle; but if it be leſs, take their difference.

12. Add the coſecant of the parallactic angle, the ſine of P, and the ſine of the altitude of the nonageſimal degree, together; the ſum (rejecting twice radius) is the ſine of the moon's true zenith diſtance.

13. To the ſine of the moon's true zenith diſtance add the logarithm of the horizontal parallax; the ſum (rejecting radius) is the logarithm of the parallax in altitude nearly: add the parallax, thus found, to the true zenith diſtance, and the ſum will be the corrected zenith diſtance.

14. Add the ſine of the corrected zenith diſtance, the coſine of the parallactic angle, and the logarithm of the horizontal parallax, together; the ſum (rejecting twice radius) is the logarithm of the parallax in latitude.

15. Add the logarithm of the parallax in latitude, the tangent of the parallactic angle, and the ſecant of the moon's latitude, together; the ſum (rejecting twice radius) is the logarithm of the parallax in longitude.

EXAMPLE.

"What is the altitude and longitude of the nonageſimal degree at Ludlow, whoſe latitude is 52° 23′ north, and longitude $0^h.11^m$. weſt of *Greenwich*, 7th February, 1778, at $10^h.56.11$ app. time, being the time of an occulation of μ geminorum?"

Not

Not having the Almanack for 1778, I ſhall aſſume the Moon's Latitude to be 0° 51′ S. and her Longitude 91° 57′.

h ′ ″		h ′ ″	
10 56 11	ap. time	21 27 14	⊙ AR
0 11 0	diff. long.	10 56 11	
11 7 11	ap. t. *Greenw.*	8 23 25	AR of Merid.
° ′		° ′	
		125 51 15	=AR
52 23	latitude	270	
0 14	correction		
52 9	reduced lat.	144 8 45	=A
37 51	colat.		
		tang. of latitude	10.11319
18 55	half colat.	tang. of obliq.	9.63761
11 44	half obliq.		
		Sine of 34°.18′	=X 9.75080

C=30 39	ſecant	10.06535	coſecant	10.29261
D= 7 11	coſine	9.99658	ſine	9.09706
½A=72 4	cotan.	9.51005	cotang.	9.51005
M=20 28	tan. M	9.57198	tang. N.	8.89972
N= 4 32				

25 0	A=144. 9	ſin.	9.76765
B= 65 0	Lat. 52. 9	cos.	9.78788
180 0	B 65 0	ſec.	10.37405
115 0	long. nonag. deg.		
° ′	altitude of ditto 58 15 S		9.92958
45 26	=half ☽'s polar diſtance		
29 8	=half alt. non. degree		

Q=74 34	ſecant	10.57493	coſec.	10.01595
R=16 18	coſine	9.98218	ſine	9.44819
½P=11 32	cotan.	10.69025	cotan.	10.69025
m=86 46	tan. m	11.24736	tan. n	10.15439
n=54 58				

parallactic angle = 31 48	cosecant	10.27823
alt. non. degree 58 15	- sine	9.92958
P = 23 3	- sine	9.59277
moon's true zen. d. 39 11	- sine	9.80058
horizon. parallax 3488	- log.	3.54258
par. in alt. nearly 2204	- log.	3.34316
Corrected zen. dist. 39 47 44	sine	9.80628
hor par.	log.	3.54258
parallactic angle	cosine	9.92936
parallax in latitude = 1898	log.	3.27822
parallactic angle - -	tangent	9.79241
moon's latitude 0 51 -	secant	10.00023
parallax in lon. 1177 -	log.	3.07086

When the moon is very near the ecliptic, as in eclipses, the following method will be nearly exact.

1. Add the cosine of the altitude of the nonagesimal degree to the logarithm of the horizontal parallax; the sum (rejecting radius) is the logarithm of the parallax of latitude nearly: add this parallax to the complement of the altitude of the nonagesimal degree, and call the sum the complement of the altitude of the nonagesimal degree corrected.

2. Add the cosecant of the complement of the altitude of the nonagesimal degree, the sine of the complement of the altitude of the nonagesimal degree corrected, and logarithm of the parallax of latitude, nearly together; the

the ſum (rejecting twice radius) is the logarithm of the parallax in latitude corrected.

3. Add the logarithm of the parallax in latitude corrected, the ſine of P, and the tangent of the altitude of the nonageſimal degree, together; the ſum (rejecting twice radius) is the logarithm of the parallax in longitude.

Scholium. The method of applying the parallaxes uſually given, requires no other correction than the following. When the pole of the ecliptic of the ſame name as the latitude is under the horizon, to the cotangent of the altitude of the nonageſimal degree add the cotangent of the moon's latitude; the ſum is the coſine of an angle; which added to, and ſubtracted from, the longitude of nonageſimal degree, give two longitudes, between which the moon's latitude of a contrary name to the elevated pole is to be increaſed for the apparent latitude; but beyond thoſe longitudes the moon's true latitude is to be increaſed by the parallax in latitude to have the apparent latitude.

REMARKS

REMARKS

ON

ARTIFICIAL HORIZONS, &c.

By Mr. REUBEN BURROW.

THE utility of a perfect horizon, and the liableneſs of quickſilver to be diſturbed by the leaſt wind, have induced numbers of people to invent artificial horizons of different kinds, and many of them very complicated. Some time ago, having occaſion to determine the ſituation of ſeveral places by aſtronomical obſervations, and there being no aſtronomical quadrant belonging to the Company in the ſettlement, I was under a neceſſity of determining the latitudes by a ſextant, and that at a time when the ſun paſſed ſo near the zenith as to make it impoſſible to get meridian altitudes: I therefore collected all the different artificial horizons and glaſs roofs, and other contrivances for that purpoſe, I could meet with; but, though they appeared correct, the reſults were very erroneous. I examined them by bringing the two limbs of the ſun, ſeen by direct viſion, to touch apparently in the teleſcope of a ſextant, and then obſerved the reflected images in quickſilver, which ſtill appeared to touch as before; but, on examining the reflected images in the reſt of the artificial horizons, none of them appeared to touch; and the error in many was very conſiderable. I tried a number of other methods with little ſucceſs, as they were moſtly combinations of glaſſes. At laſt, accidentally hearing ſome officers ſpeaking of "Tents that would neither turn ſun or rain," I conſidered that the rays of the ſun would paſs through cloth unrefracted; and in conſequence

quence of this idea I applied ſome thin moſquita * curtain as a covering to the quickſilver, and found it effectually excluded the wind, and admitted the ſun; and what is of equal conſequence in this country, it totally kept away thoſe minute inſects that diſturb the ſurface of the quickſilver in obſerving. In ſhort, it formed ſo complete a horizon, that I could not before have hoped for any thing ſo perfect; and it is equally applicable to the ſun and ſtars.

For taking very great or very ſmall elevations of the ſun, (which with the common horizon ſextants are impracticable in the direct method,) a poliſhed metalline inſtrument might be made in the form of part of a hollow obtuſe cone: this might have its axis ſet perpendicular to the horizon at any time *by means of ſcrews* in a variety of methods; and obſervations might be made by it with great exactneſs.

In finding the latitude, when meridian obſervations cannot be taken, either there is an opportunity of taking altitudes on both ſides of the meridian, or not. When there is not, the beſt method is to calculate the latitude from two altitudes, and the time between, exactly by ſpherical trigonometry, (firſt correcting the declination to the beginning and end of each interval,) as the approximating methods of *Dowes*, and others, are totally inſufficient. When obſervations can be taken both before and after noon, it is beſt to take a number of altitudes in both, and then make out the equal altitudes by proportion; then having found the true time of noon by the uſual method, correct the two intervals, and the declination to each time, and the latitude may be found as follows.

ADD

* A kind of ſilk gauze as close as book-muslin, and perfectly transparent. It is to be ſtretched over a hoop, which ſtands without touching the veſſel containing the mercury.

Add the cofine of the angle from noon, to the cotangent of the declination; the fum is the cotangent of an arch A.

Add the fine of A, the fine of the altitude, and the arithmetical complement of the fine of the declination, together; the fum is the cofine of an arch B.

Then the fum or difference of A and B is the latitude.

As every fingle altitude gives an independent latitude, it is evident the latitude may be thus found to great exactnefs.

An inftrument might eafily be contrived to meafure the fun's angle of pofition to great exactnefs, from whence the latitude might readily be deduced; a fmall addition to the common theodolite would be fufficient. The variation of the azimuth near the meridian may alfo be advantageoufly applied for the fame purpofe.

DEMONSTRATION

OF A

THEOREM

Concerning the INTERSECTIONS *of* CURVES.

BY REUBEN BURROW, ESQ.

IN *Stone's* Mathematical Dictionary is the following paragraph: "Two geometrical lines of any order, "will cut one another in as many points as the number "expreſſes which is produced by the multiplication of "the two numbers expreſſing thoſe orders." And Mr. *Braikonridge*, in the Preface to his *Exercitatio Geometrica de Deſcriptione Curvarum*, ſays, "Mr. *George* "*Campbell*, now Clerk of the Stores at *Woolwich*, has "got a neat demonſtration of the ſame, which I hope "he will publiſh." As it does not appear that Mr. *Campbell* ever publiſhed any thing, except a paper on the roots of equations, and a ſmall treatiſe on the plagiariſms of *Maclaurin*, it is very probable his demonſtration is loſt, and therefore it may not be improper to publiſh the following.

The equation of a line of the firſt order has one root, or function of the abſciſs, for the ordinate; of the ſecond order, two; and ſo on.

In equations for two right lines, the roots may ſo vary and accommodate themſelves to each other, that the quantities expreſſing the ordinates may be equal; and as there is only one caſe where this may happen, therefore two right lines can only interſect in one point.

If a line of the firſt order be compared with a line of the ſecond, or an equation of one root with an equation of two, the root of the firſt, and a ſingle root of the ſecond,

cond, may ſo vary as to become equal to each other, or to form an interſection. By the ſame reaſon, the ſingle root of the firſt, and the remaining root of the ſecond, may each ſo vary as to become equal, or to form another interſection; and therefore a right line cuts a line of the ſecond order in two points.

If a line of the firſt order be compared with a line of the n order, it is alſo evident that the ſingle root of the firſt line may in the ſame manner be ſo varied with each of the n roots of the ſecond line as to become equal; and therefore a right line may cut a line of the n order in n points.

Let a line of the m order be now compared with a line of the order n; then as each ſingle root of the firſt line may become equal, in the ſame manner, to every root in the ſecond, it therefore follows, that for every unit in m there may be n interſections; and as there are m units, there conſequently will be mn interſections.

The ſame method may be applied to the determination of the points, lines, and ſurfaces, that ariſe from the interſections of lines, ſurfaces, and ſolids; by conſidering that the number of times that p may be taken from m, and q at the ſame time from n, will be

$$= \frac{m.m-1.....p, \times n.n-1....q}{1.2.3...p, \times 1.2.3....q}$$

XVII.

THE

PROCESS OF MAKING ATTAR,

OR

ESSENTIAL OIL OF ROSES.

BY

LIEUTENANT COLONEL POLIER.

THE *attar* is obtained from the roſes by ſimple diſtillation, and the following is the mode in which I have made it. A quantity of freſh roſes (for example forty pounds) are put in a ſtill with ſixty pounds of water, the roſes being left as they are with their calyxes, but with the ſtems cut cloſe. The maſs is then well mixed together with the hands, and a gentle fire is made under the ſtill. When the water begins to grow hot, and fumes to riſe, the cap of the ſtill is put on, and the pipe fixed: the chinks are then well luted with paſte, and cold water put on the refrigeratory at the top. The receiver is alſo adapted at the end of the pipe; and the fire is continued under the ſtill, neither too violent nor too weak. When the impregnated water begins to come over, and the ſtill is very hot, the fire is leſſened by gentle degrees, and the diſtillation continued till thirty pounds of water are come over, which is generally done in about four or five hours. This roſe-water is to be poured again on a freſh quantity (forty pounds)

of

of roſes; and from fifteen to twenty pounds of water are to be drawn by diſtillation, following the ſame proceſs as before. The roſe-water thus made and cohobated, will be found, if the roſes were good and freſh, and the diſtillation carefully performed, highly ſcented with the roſes. It is then poured into pans either of earthen-ware or of tinned metal, and left expoſed to the freſh air for the night. The *attar*, or *eſſence*, will be found in the morning congealed, and ſwimming on the top of the water. This is to be carefully ſeparated, and collected, either with a thin ſhell or a ſkimmer, and poured into a vial. When a certain quantity has thus been obtained, the water and feces muſt be ſeparated from the clear eſſence, which, with reſpect to the firſt, will not be difficult to do, as the eſſence congeals with a ſlight cold, and the water may then be made to run off. If, after that, the eſſence is kept fluid by heat, the feces will ſubſide, and may be ſeparated; but if the operation has been neatly performed, theſe will be little or none. The feces are as highly perfumed as the eſſence, and muſt be kept after as much of the eſſence has been ſkimmed from the roſe-water as could be. The remaining water ſhould be uſed for freſh diſtillations, inſtead of common water; at leaſt as far as it will go.

The above is the whole proceſs of making genuine *attar* of roſes. But, as the roſes of this country give but a very ſmall quantity of eſſence, and it is in high eſteem, various ways have been thought of to augment the quantity, though at the expence of the quality. In this country it is uſual to add to the roſes, when put in the ſtill, a quantity of ſandal-wood raſpings, ſome more, ſome leſs, from one to five *tolahs*, or half ounces. The ſandal contains a deal of eſſential oil, which comes over freely in the common diſtillation, and mixing with the roſe-water and eſſence, becomes ſtrongly impregnated with their perfume. The impoſition, however, cannot be concealed: the eſſential oil of ſandal will not congeal in common cold; and its ſmell cannot be kept under, but

but will be apparent and predominate, in ſpite of every art. In *Caſhemire* they ſeldom uſe ſandal to adulterate the *attar*; but I have been informed, to increaſe the quantity, they diſtil with the roſes a ſweet-ſcented grain, which does not communicate any unpleaſant ſcent, and gives the *attar* a high clear green colour. This eſſence alſo does not congeal in a ſlight cold, as that of roſes.

Many other ways of adulteration have been practiſed, but all ſo groſs and palpable, that I ſhall ſay nothing of them.

The quantity of eſſential oil to be obtained from the roſes is very precarious and uncertain, as it depends not only on the ſkill of the diſtiller, but alſo on the quality of the roſes, and the favourableneſs of the ſeaſon. Even in Europe, where the chemiſts are ſo perfect in their buſineſs, ſome, as *Tachenius*, obtained only half an ounce of oil from one hundred pounds of roſes. *Hamberg* obtained one ounce from the ſame quantity; and *Hoffman* above two ounces. (N. B. The roſes in thoſe inſtances were ſtripped of their calyxes, and only the leaves uſed.) In this country nothing like either can be had; and to obtain four *maſhas* (about one drachm and a half) from eighty pounds, which, deducting the calyxes, comes to ſomething leſs than three drachms per hundred pounds of roſe-leaves, the ſeaſon muſt be very favourable, and the operation carefully performed.

In the preſent year, 1787, I had only ſixteen *tolahs* of *attar* from fifty-four *maunds*, twenty-three *ſeers*, of roſes, produced from a field of thirty-three *biggahs*, or eleven *Engliſh* acres; which comes to about two drachms per 100 pounds. The colour of the *attar* of roſes is no criterion of its goodneſs, quality, or country. I have had, this year, *attar* of a fine emerald green, of a bright yellow, and of a reddiſh hue, from the ſame ground, and obtained by the ſame proceſs, only of roſes collected on different days.

The

The calyxes do not in any ſhape diminiſh the quality of the *attar*, nor impart any green colour to it; though perhaps they may augment the quantity; but the trouble neceſſary to ſtrip them muſt, and ought, to prevent its being ever put in practice.

Lucknow, May, 1787.

BY

MR. MACDONALD,

WITH

A SPECIMEN OF GOLD.

THE country of *Limong*, on the Iſland of *Sumatra*, immediately contiguous to the Preſidency of *Fort Marlborough*, and between ſeventy and eighty miles inland, produces the fineſt gold and gold-duſt on that iſland. The *Limong* gold merchants repair annually to *Marlborough* for the purchaſe of *opium*, and ſuch other articles as they may be in want of; in exchange for which they give gold of ſo pure a nature as to contain little or no alloy. The gold is found ſometimes in duſt, and often lodged in a very hard ſtone. It is of a whitiſh colour, and reſembles that in which the veins run in the gold mines of *Tiltil* in *Chili*. The gold is extracted by beating the compound maſs in order to diſengage it from the ſtone, which flies off in ſplinters, and leaves the gold cleared of it. This is the mode uſed by a rude people; by which a part of the gold muſt be loſt in the ſplinters of the ſtone which fly off in beating the maſs. They are totally ignorant of the advantage of grinding it to a groſs powder, mixing it with quickſilver, and ſeparating the earthy and ſtony particles from thoſe of the gold, by the action of a ſtream of water on this paſte, carrying off the former, and leaving the latter precipitated to the bottom by their greater weight. They are almoſt entirely ignorant of the principles of aſſaying and amalgamation, but are extremely expert in ſeparating particles of foreign metals from gold-duſt, by a very ſuperior acuteneſs of viſion, no doubt ariſing from experience, and not a peculiar gift. They have people among them who are gold-

cleaners

cleaners by occupation. The gold is found in a ſpecies of earth compoſed of a clayiſh-red-loam. On digging the earth, it is found to conſiſt of ſtrata (under the loam of the ſurface, commonly called ſoil) of irregular ſhaped ſtones of a mouldering nature, mixed with a red clay, and hard pebbles mixed with a pale red clay, of a more denſe conſiſtency than that of the firſt ſtratum. The firſt ſtratum extends to a depth of three feet and a half, and the ſecond to ſomewhat leſs. The conſiſtency under theſe ſtrata is formed of either hard rock, or of gravel nearly approaching to it. The gold is found mixed with a ſtone of a hard nature, and capable of ſuſtaining a poliſh. It is found near the ſurface, and generally in a ſoil freeſt from ſolid rock.

The merchants, who bring the gold for ſale, are not themſelves the finders or gatherers of it, but receive it, for merchandiſe, from the *Malays* inhabiting the interior parts of the country. The native indolence of the *Malay* diſpoſition prevents them from collecting more than is ſufficient to ſupply the few and ſimple wants of a race of men as yet unenlightend by civilization and ſcience, and ignorant of the full extent of the advantages of the country inhabited by them. We have not, to this hour, explored a country, which, we have reaſon to ſuppoſe, produces more, or as much, gold as either *Peru* or *Mexico*. This may be attributed partly to the difficulties incident to the undertaking, and partly to a want of curioſity, that, indulged, might have been productive of great national and private advantages. The roads leading to this golden country are almoſt impervious, affording only a ſcanty path to a ſingle traveller, where whole nights muſt be paſſed in the open air, expoſed to the malignant influence of a hoſtile climate, in a country infeſted by the moſt ferocious wild beaſts. Theſe are circumſtances that have hitherto checked curioſity; but perſeverance, and contrived precaution, will ſurmount the obſtacles they furniſh; and ſuch

ſuch diſcoveries might be made, as would amply compenſate for the difficulties leading to them. The gold-merchants who come from the neighbouring and leſs rich countries, give us ſuch accounts of the facility of procuring gold as border nearly on the marvellous, and would be altogether incredible, if the great quantities of that metal produced by them, did not, in a great meaſure, evince the certainty of their accounts. I have ſeen an imperfect chart of a part of the interior country, made by an intelligent native, on the ſcale of the rate of his walking, and from the reſpective ſituations of the ſun in regard to his poſition. It contained a chain of what he called Gold Mines, extending in latitude, nearly, not much leſs than three degrees. This chart is in the poſſeſſion of Mr. *Miller*, of the Council of *Fort Marlborough*, who did me the favour of explaining it. After making allowances for the licenſe of a traveller, ſome credit may be given to this chart, more eſpecially, as we are well aſſured that that part of *Sumatra* produces large quantities of fine gold. The reſult of the whole is, that it would be a very laudable object to explore thoſe rich countries, and to eſtabliſh the working of gold-mines in them, as it could be done under a certain proſpect of advantage. The expence ariſing from clearing the country, procuring intelligence, making roads, eſtabliſhing and forming poſts of communication, and of employing profeſſional men, would, undoubtedly, be at firſt very conſiderable, but the reſulting advantages would defray theſe, and render it a matter of ſurpriſe, that a meaſure attended with ſuch obvious utility had not been adopted at an earlier period.

It is more than probable that *Sumatra* muſt have been the *Ophir* of *Solomon's* time. This conjecture derives no ſmall force from the word *ophir* being really a *Malay* ſubſtantive of a compound ſenſe, ſignifying, *a mountain containing gold.* The natives have no oral or written tradition on the ſubject, excepting that the iſland has in former times afforded gold for exportation; whether to the

the eaſtward or weſtward, remains an uncertainty. We have certain accounts that the veſſels that imported this article were long detained, or did not return in much leſs than a year. It is therefore probable that they wintered, during the violence of the SW. monſoon, either at *Ceylon*, or on the north-eaſt coaſt, and completed their voyages during the moderate part of the other monſoon.

XVIII.

ON THE

Literature of the Hindus, from the Sanſcrit,

COMMUNICATED BY

GOVERDHAN CAUL.

With a ſhort Commentary.

THE TEXT.

THERE are eighteen *Vidyá's*, or Parts of *true Knowledge*, and ſome branches of knowledge *falſely ſo called*, of both which a ſhort account ſhall here be exhibited.

The firſt *four* are the immortal *Véda's*, evidently revealed by GOD; which are entitled, in one compound word, *Rigyajuhſámát'harva*, or, in ſeparate words, *Rich*, *Yajuſh*, *Sáman*, and *At'harvan*. The *Rigvéda* conſiſts of *five* ſections; the *Yajurvéda*, of *eighty-ſix*; the *Sámavéda*, of a *thouſand*; and the *At'harvavéda*, of *nine*; with eleven hundred *śác'ha's*, or branches, in various diviſions and ſubdiviſions. The *Véda's*, in truth, are infinite; but were reduced by *Vyáſa* to this number and order: the principal part of them is that which explains the duties of man in a methodical arrangement; and in the *fourth* is a ſyſtem of divine ordinances.

From theſe are deduced the four *Upavédas*, namely, *Ayuſh*, *Gándharva*, *Dhanuſh*, and *St'hápatya*; the firſt of which, or *Ayurvéda*, was delivered to mankind by *Brahmá*, *Indra*, *Dhanwantari*, and *five* other Deities; and compriſes the theory of diſorders and medicines, with the practical methods of curing diſeaſes. The ſecond, or muſick, was invented and explained by *Bharata*: it is chiefly uſeful in raiſing the mind by

devotion to the felicity of the Divine Nature. The third *Upavéda* was compoſed by *Viſwamitra*, on the fabrication and uſe of arms and implements handled in war by the tribe of *Cſhatriya's*. *Viśwacarman* revealed the *fourth* in various treatiſes on *ſixty-four* mechanical arts, for the improvement of ſuch as exerciſe them.

Six *Anga's*, or *bodies of learning*, are alſo derived from the ſame ſource: their names are, *Sicſhà*, *Calpa*, *Vyácarana*, *Ch'handas*, *Jyótith*, and *Niructi*. The *firſt* was written by *Pánini*, an inſpired ſaint, on the *pronunciation* of vocal ſounds; the *ſecond* contains a detail of religious acts and ceremonies from the firſt to the laſt; and from the branches of theſe works a variety of rules have been framed by *Aśwaláyana*, and others. The *third*, or the grammar, entitled *Páńiníya*, conſiſting of *eight* lectures, or chapters, (*Vriddhirádaij*, and ſo forth,) was the production of the three *Riſhi's*, or holy men, and teaches the proper diſcriminations of words in conſtruction; but other leſs abſtruſe grammars, compiled merely for popular uſe, are not conſidered as *Anga's*. The *fourth*, or *proſody*, was taught by a *Muni*, named *Pingala*, and treats of charms and incantations, in verſes aptly framed, and variouſly meaſured; ſuch as the *Gáyatri*, and a thouſand others. *Aſtronomy* is the *fifth* of the *Védánga's*, as it was delivered by *Súrya*, and other divine perſons: it is neceſſary in calculations of time. The *ſixth*, or *Niructi*, was compoſed by *Yáſca*, (ſo is the manuſcript; but perhaps, it ſhould be *Vyáſa*,) on the ſignification of difficult words and phraſes in the *Véda's*.

Laſtly, there are four *Upánga's*, called *Puráńa*, *Nyáya*, *Mímánſà*, and *Dherma śáſtra*. Eighteen *Puráńa's* (that of *Brahmá* and the reſt) were compoſed by *Vyáſa* for the inſtruction and entertainment of mankind in general,

Nyáya

Nyáya is derived from the root *ní*, to *acquire or apprehend*; and, in this ſenſe, the books on *apprehenſion*, *reaſoning*, and *judgment*, are called *Nyáya*. The principal of theſe are the work of *Gautama*, in *five* chapters; and that of *Canáda*, in *ten*: both teaching the meaning of ſacred texts, the difference between juſt and unjuſt, right and wrong, and the principles of knowledge, all arranged under *twenty-three* heads. *Mímánſà* is alſo *two-fold*; both ſhewing what acts are pure or impure, what objects are to be deſired or avoided, and by what means the ſoul may aſcend to the Firſt Principle. The *former*, or *Carma Mímánſà*, compriſed in twelve chapters, was written by *Jaimini*, and diſcuſſes queſtions of moral duties and law. Next follows the *Upáſaná Cánda*, in four lectures, (*Sancarſhana* and the reſt,) containing a ſurvey of religious duties; to which part belong the rules of *Sándilya*, and others, on devotion, and duty to God. Such are the contents of the *Púrva*, or *former*, *Mímánſà*. The *Uttara*, or *latter*, abounding in queſtions on the Divine Nature, and other ſublime ſpeculations, was compoſed by *Vyáſa*, in *four* chapters and *ſixteen* ſections: it may be conſidered as the brain and ſpring of all the *Anga's*; it expoſes the heretical opinions of *Rámánuja*, *Mádhwa*, *Vallabha*, and other ſophiſts; and, in a manner ſuited to the comprehenſion of adepts, it treats on the true nature of *Ganéſa*, *Bháſcara*, or the Sun, *Nílacanta*, *Lacſhmí*, and other *forms* of One Divine Being. A ſimilar work was written by *Sríſancara*, demonſtrating the ſupreme power, goodneſs and eternity of God.

The Body of *Law*, called *Smríti*, conſiſts of *eighteen* books, each divided under three general heads, the duties of *religion*, the adminiſtration of *juſtice*, and the puniſhment or *expiation* of crimes. They were delivered, for the inſtruction of the human ſpecies, by *Menu*, and other ſacred perſonages.

As to *Ethicks*, the *Véda's* contain all that relates to he duties of kings; the *Purána's*, what belongs to the elation of huſband and wife; and the duties of friendhip and ſociety (which complete the triple diviſion) are aught ſuccinctly in both: this double diviſion of *Anga's* nd *Upánga's*, may be conſidered as denoting the doule benefit ariſing from them in *theory* and *practice*.

The *Bhárata* and *Rámáyaṅa*, which are both epick poems, compriſe the moſt valuable part of ancient hiſtory.

For the information of the lower claſſes in religious knowledge, the *Páſúpata*, the *Pancharátra*, and other works, fit for nightly meditation, were compoſed by *Siva*, and others, in a hundred and ninety-two parts, on different ſubjects.

What follow are not really divine, but contain infinite contradictions. *Sánc'hya* is twofold; that with *Iśwara*, and that without *Iśwara*. The *former* is entitled *Pátanjala*, in one chapter of four ſections, and is uſeful in removing doubts by pious contemplation: the *ſecond*, or *Cápila*, is in ſix chapters, on the production of all things by the union of *Pracriti*, or *nature*, and *Puruſha*, or the *firſt male*: it compriſes alſo, in eight parts, rules for devotion, thoughts on the inviſible power, and other topicks. Both theſe works contain a ſtudied and accurate *enumeration* of natural bodies and their principles; whence this philoſophy is named *Sánc'hya*. Others hold, that it was ſo called from its *reckoning three ſorts of pain*.

The *Mímánſa*, therefore, is in *two* parts, the *Nyáya* in *two*, and the *Sánc'hya* in *two*; and theſe *ſix* ſchools comprehend all the doctrine of the theiſts.

Laſt of all appears a work written by *Buddha*: and there are alſo *ſix* atheiſtical ſyſtems of philoſophy, entitled *Yógáchára*, *Saudhánta*, *Vaibháſhica*, *Mádhyamica*, *Digambara*, and *Chárvác*; all full of indeterminate phraſes, errors in ſenſe, confuſion between diſtinct qualities, incomprehenſible notions, opinions not duly weighed, tenets deſtructive of natural equality, containing a jumble of atheiſm and ethicks; diſtributed, like our orthodox books, into a number of ſections, which omit what ought to be expreſſed, and expreſs what ought to be omitted; abounding in falſe propoſitions, idle propoſitions, impertinent propoſitions. Some aſſert, that the heterodox ſchools have no *Upánga's*; others, that they have ſix *Anga's*, and as many *Sánga's*, or *Bodies*, and other *Appendices*.

Such is the analyſis of univerſal knowledge, *practical* and *ſpeculative*.

THE COMMENTARY.

The firſt chapter of a rare *Sanſcrit* Book, entitled *Vidyáderſa*, or a *View of Learning*, is written in ſo cloſe and conciſe a ſtyle, that ſome parts of it are very obſcure, and the whole requires an explanation. From the beginning of it we learn that the *Véda's* are conſidered by the *Hindus* as the fountain of all knowledge, human and divine; whence the verſes of them are ſaid

in

in the *Gîtà* to be the *leaves* of that holy tree, to which the Almighty himſelf is compared:

[*yam*
úrdhwa múlam adhah śâc'ham aśwatt'ham práhuravya-
ch'handánſi yaſya pernáni yaſtam véda ſa védavit.

"The wiſe have called the Incorruptible One an *Aś-*
"*watt'ha*, with its roots above and its branches below;
"the leaves of which are the ſacred meaſures. He
"who knows this tree knows the *Véda's*."

All the *Pandits* inſiſt that *Aśwatt'ha* means the *Pippala*, or *religious fig tree*, with heart-ſhaped, pointed, and tremulous leaves; but the compariſon of heavenly knowledge, deſcending and taking root on earth, to the *Vaṭa*, or *great Indian fig-tree*, which has moſt conſpicuouſly its roots on high, or at leaſt has radicating branches, would have been far more exact and ſtriking.

The *Véda's* conſiſt of three *Cáńda's*, or *General Heads*; namely, *Carma*, *Jńyána*, *Upáſanà*; or *Works*, *Faith*, and *Worſhip*: to the firſt of which the author of the *Vidyáderſa* wiſely gives the preference, as *Menu* himſelf prefers *univerſal benevolence* to the *ceremonies* of religion:

Japyénaiva tu ſanſiddhyèdbráhmanó nátra ſanſayah:
Curyádanyatravá curyánmaitrá bráhmana uchyatè.

That is; "By ſilent adoration undoubtedly a *Bráh-*
"*man* attains holineſs; but every *benevolent man*, whe-
"ther he perform or omit that ceremony, is juſtly

" ſtyled a *Bráhman.*" This triple diviſion of the *Véda's* may ſeem at firſt to throw light on a very obſcure line in the *Gítà :*

Traigunyaviſhayah vêdà niſtraigunya bhavárjuna :

Or, " The *Véda's* are attended with three qualities; " be not thou a man of *three* qualities, *O, Arjuna !*"

But ſeveral *Pandits* are of opinion, that the phraſe muſt relate to the three *Guna's*, or *qualities* of the mind; that of *excellence*, that of *paſſion*, and that of *darkneſs;* from the laſt of which a hero ſhould be wholly exempt; though examples of it occur in the *Véda's*, where animals are ordered to be *ſacrificed*, and where horrid incantations are inſerted for the *deſtruction* of enemies.

It is extremely ſingular, as Mr. *Wilkins* has already obſerved, that, notwithſtanding the fable of *Bráhma's four* mouths, each of which uttered a *Véda*, yet moſt ancient writers mention only *three Véda's*, in the order as they occur in the compound word *Rigyajuhſáma ;* whence it is inferred, that the *At'harvan* was written or collected after the three firſt ; and the two following arguments, which are entirely new, will ſtrongly confirm this inference. In the eleventh book of *Menu*, a work aſcribed to the *firſt* age of mankind, and certainly of high antiquity, the *At'harvan* is mentioned by name, and ſtyled the *Véda* of *Vêda's ;* a phraſe which countenances the notion of *Dárá Shecúh*, who aſſerts, in the preface to his *Upaniſhat*, that " the *three* firſt *Véda's* are named ſeparately, " becauſe the *At'harvan* is a corollary from them all, and " contains the quinteſſence of them." But this verſe of *Menu*, which occurs in a modern copy of the work

brought from *Bánáres*, and which would ſupport the antiquity and excellence of the *fourth Véda*, is entirely omitted in the beſt copies, and particularly in a very fine one written at *Gayá*, where it was accurately collated by a learned *Bráhman*; ſo that, as *Menú* himſelf, in other places, names only three *Véda's*, we muſt believe this line to be an interpolation by ſome admirer of the *Át'harvan*: and ſuch an artifice overthrows the very doctrine which it was intended to ſuſtain.

The next argument is yet ſtronger, ſince it ariſes from *internal* evidence; and of this we are now enabled to judge by the noble zeal of Colonel *Polier* in collecting *Indian* curioſities; which has been ſo judiciouſly applied, and ſo happily exerted, that he now poſſeſſes a complete copy of the *four Véda's* in eleven large volumes.

On a curſory inſpection of thoſe books it appears, that even a learner of *Sanſcrit* may read a conſiderable part of the *Át'harvavéda* without a dictionary; but that the ſtyle of the other *three* is ſo obſolete, as to ſeem almoſt a different dialect. When we are informed, therefore, but that a few *Bráhmans* at *Bánáres* can underſtand any part of the *Véda's*, we muſt preſume, that none are meant, but the *Rich*, *Yajuſh*, and *Sáman*, with an exception of the *Át'harvan*, the language of which is comparatively modern; as the learned will perceive from the following ſpecimen:

Yatrâ brahmavidò yánti dícſhayà tapaſàſaha agnirmáñ. tatra nayatwagnirmédháñ dedhâtumè, agnayé ſwáhá. váyurmáñ tatra nayatu váyuh práñán dedhátu mè, váyuwè ſwáhà, ſúryò máñ tatra nayatu chacſhuh ſuryò dedhátu mè, ſuryáya ſwáhà; chañdrò máñ tatra nayatu manaſchañdrò dedhâtu mé, chandráya ſwáhà. ſómò

mán tatra nayatu payah ſómò dedhátu mé, ſómáya ſwáhà. Indrò *mán tatra nayatu balamindrò dedhátu mé, indráya ſwáhà. ápò mán tatra nayatwámrítammópatíſhtatu, adbhyah ſwáhà. yatra brahmavidò yánti díc-ſhayà tapaſà ſaha, brahmà mán tatra nayatu brahma brahmà dedhátu me, brahmanè ſwáhà.*

That is, "Where they, who know the Great One, go "through holy rites, and through piety, thither may *fire* "raiſe me! May fire receive my ſacrifices! Myſte- "rious praiſe to fire! May *air* waft me thither! May "air increaſe my ſpirits! Myſterious praiſe to air! "May the *Sun* draw me thither! May the ſun enlighten "my eye! Myſterious praiſe to the ſun! May the "*Moon* bear me thither! May the moon receive my "mind! Myſterious praiſe to the moon! May the "plant *Sóma* lead me thither! May *Sóma* beſtow on "me its hallowed milk! Myſterious praiſe to *Sóma!* "May *Indra*, or the *firmament*, carry me thither! May "*Indra* give me ſtrength! Myſterious praiſe to *Indra!* "May *water* bear me thither! May water bring me "the ſtream of immortality! Myſterious praiſe to the "waters! Where they, who know the Great One, go, "through holy rites, and through piety, thither may "*Brahmá* conduct me! May *Brahmá* lead me to the "Great One! Myſterious praiſe to *Brahmá!*"

Several other paſſages might have been cited from the firſt book of the *Atharvan*, particularly a tremendous *incantation* with conſecrated *graſs*, called *Darbbha*, and a ſublime hymn to *Cála*, or Time; but a ſingle paſſage will ſuffice to ſhow the ſtyle and language of this extraordinary work. It would not be ſo eaſy to produce a genuine extract from the other *Véda's*. Indeed, in a book, entitled *Sivavédánta*, written in *Sanſcrit*, but in *Cáſhmirian* letters, a ſtanza from the *Yajurvéda*, is introduced, which deſerves, for its ſublimity, to be quoted here;

here; though the regular cadence of the verſes, and the poliſhed elegance of the language, cannot but induce a ſuſpicion, that it is a more modern paraphraſe of ſome text in the ancient ſcripture:

natatra ſúryò bháti nacha chañdra táracau, némá vidyutó bháńti cuta éva vahníh: taméva bhántam anubhátí ſervam, taſya bháſá ſervamidam vibháti.

That is, "There the ſun ſhines not, nor the moon and "ſtars. Theſe lightnings flaſh not *in that place:* how "ſhould even fire blaze *there? God* irradiates all this "bright ſubſtance; and by its effulgence the univerſe "is enlightened."

After all, the books on *Divine Knowledge*, called *Véda*, or what is *known*, and *Sruti*, or what has been *heard*, from revelation, are ſtill ſuppoſed to be very numerous; and the *four* here mentioned are thought to have been ſelected as containing all the information neceſſary for man. *Mohſani Fání*, the very candid and ingenious author of the *Dabiſtán*, deſcribes in his firſt chapter a race of old *Perſian* ſages, who appear from the whole of his account to have been *Hindus:* and we cannot doubt that the book of *Mahábád*, or *Menu*, which was written, he ſays, *in a celeſtial dialect*, means the *Véda;* ſo that, as *Zerátuſht* was only a reformer, we find in *India* the true ſource of the ancient *Perſian* religion. To this head belong the numerous *Tantra*, *Mantra*, *Agama*, and *Nigama*, *Sáſtra's* which conſiſt of *incantations* and other texts of the *Véda's*, with remarks on the occaſions on which they may be ſucceſsfully applied. It muſt not be omitted, that the *Commentaries* on the *Hindu Scriptures*, among which that of *Vaſiſhtha* ſeems to be reputed the moſt excellent, are innumerable; but, while we have

acceſs to the fountains, we need not waſte our time in tracing the rivulets.

From the *Védas* are immediately deduced the practical arts of *Chirurgery* and *Medicine*, *Muſick*, and *Dancing*; *Archery*, which compriſes the whole art of war; and *Architecture*, under which the ſyſtem of *Mechanical Arts* is included. According to the *Pandits*, who inſtructed *Abu'lfazl*, each of the *four* Scriptures gave riſe to one of the *Upavéda's*, or *Sub-ſcriptures*, in the order in which they have been mentioned; but this exactneſs of analogy ſeems to favour of refinement.

Infinite advantage may be derived by *Europeans* from the various *Medical* books in *Sanſcrit*, which contain the names and deſcriptions of *Indian* plants and minerals, with their uſes, diſcovered by experience in curing diſorders. There is a vaſt collection of them from the *Cheraca*, which is conſidered as a work of *Siva*, to the *Róganirúpana* and the *Nidána*, which are comparatively modern. A number of books, in proſe and verſe, have been written on *Muſick*, with ſpecimens of *Hindu* airs in a very elegant notation; but the *Silpa śáſtra*, or Body of Treatiſes on *Mechanical Arts*, is believed to be loſt.

Next in order to theſe are the ſix *Védánga's*, three of which belong to *Grammar*. One relates to religious Ceremonies; a fifth, to the whole compaſs of Mathematicks, in which the author of *Lílávatí* was eſteemed the moſt ſkilful man of his time; and the *ſixth*, to the explanation of obſcure words or phraſes in the *Védas*. The grammatical work of *Pánini*, a writer ſuppoſed to have been inſpired, is entitled *Siddhánta Caumudi*, and is ſo abſtruſe as to require the lucubrations of many years

years before it can be perfectly underſtood. When *Cáśínáṫ'ha Serman*, who attended Mr. *Wilkins*, was aſked what he thought of the *Páṇiníya*, he anſwered very expreſſively, that "it was a foreſt;" but, ſince grammar is only an inſtrument, not the end, of true knowledge, there can be little occaſion to travel over ſo rough and gloomy a path; which contains, however, probably, ſome acute ſpeculations in *Metaphyſicks*. The *Sanſcrit* Proſody is eaſy and beautiful; the learned will find in it almoſt all the meaſures of the *Greeks*; and it is remarkable, that the language of the *Bráhmans* runs very naturally into *Sapphicks*, *Alcaicks*, and *Iambicks*. Aſtronomical works in this language are exceedingly numerous; ſeventy-nine of them are ſpecified in one liſt; and if they contain the names of the principal ſtars viſible in *India*, with obſervations on their poſitions in different ages, what diſcoveries may be made in ſcience, and what certainty attained in ancient chronology!

Subordinate to theſe *Anga's* (though the reaſon of the arrangement is not obvious) are the ſeries of *Sacred Poems*, the Body of *Law*, and the *ſix* Philoſophical *śáſtras*, which the author of our text reduces to *two*, each conſiſting of *two* parts; and rejects a *third*, in *two* parts alſo, as not perfectly *orthodox*: that is, not ſtrictly conformable to his own principles.

The firſt *Indian* Poet was *Válmíci*, author of the *Rámáyana*, a complete epic poem on one continued, intereſting, and heroick action: and the next in celebrity, if it be not ſuperior in reputation for holineſs, was the *Mahábhárata* of *Vyáſa*. To him are aſcribed the ſacred *Puráṇa's*, which are called, for their excellence, *the Eighteen*, and which have the following titles: *Brahme*, or the *Great One*; *Pedma*, or the *Lotos*; *Bráhmáṇḍa*, or the *Mundane Egg*; and *Agni*, or *Fire*; (theſe *four* relate to the

the *Creation;*) *Viſhnu*, or the *Pervader*: *Garuda*, o his *Eagle*; the Transformations of *Brahmá*, *Siva*, *Linga Náreda*, ſon of *Brahmá*; *Scanda*, ſon of *Siva*; *Marcandéya*, or the Immortal Man; and *Bhawiſhya*, or th *Prediction* of *Futurity*; (theſe *nine* belong to the *attributes* and *powers* of the Deity;) and *four* others, *Matſya Varáha*, *Cúrma*, *Vámena*, or as many incarnations o the Great One in his character of *Preſerver*; all con taining ancient traditions, embelliſhed by poetry, or di guiſed by fable. The *eighteenth* is the *Bhágawata*, o Life of *Criſhna*, with which the ſame Poet is by ſom imagined to have crowned the whole ſeries; thoug others, with more reaſon, aſſign them different com poſers.

The ſyſtem of *Hindu* law, beſides the fine wor called *Menuſmriti*, "or what is *remembered* fro *Menu*," that of *Yájnyawalcya*, and thoſe of *ſixtee* other *Muni's*, with *Commentaries* on them all, conſiſ of many tracts in high eſtimation, among which tho current in *Bengal* are an excellent Treatiſe on *Inher tances*, by *Jímúta Váhana*; and a complete *Digeſt*, i *twenty-ſeven* volumes, compiled a few centuries ago b *Raghunandan*, the *Tribonian* of *India*, whoſe work the grand repoſitory of all that can be known on ſubject ſo curious in itſelf, and ſo intereſting to th *Britiſh* Government.

Of the Philoſophical Schools it will be ſufficient here to remark, that the firſt *Nyáya* ſeems analagous to the *Peripatetick*; the *ſecond*, ſometimes called *Vaiſiſhica*, to the *Ionick*; the two *Mimánſá's*, of which the *ſecond* is often diſtinguiſhed by the name of *Védánta*, to the *Platonick*: the firſt *Sánc'hya* to the *Italick*; and the ſecond, or *Pátanjala*, to the *Stoick*, Philoſophy; ſo that *Gautama* correſponds with *Ariſtotle*, *Canáda* with *Thales*, *Jaimini* with *Socrates*, *Vyáſa* with *Plato*, *Capila* with

with *Pythagoras*, and *Patanjali* with *Zeno*: but an accurate compariſon between the *Grecian* and *Indian* Schools would require a conſiderable volume. The original works of thoſe Philoſophers are very ſuccinct; but, like all the other *Sáſtras*, they are explained, or obſcured, by the *Upaderſana*, or *Commentaries*, without end. One of the fineſt compoſitions on the Philoſophy of the *Védánta* is entitled *Yóga Vásiſht'ha*, and contains the inſtructions of the great *Vaſiſtha* to his pupil, *Ráma*, king of *Ayódhyà*.

It reſults from this analyſis of *Hindu* Literature, that the *Véda*, *Upavéda*, *Védánga*, *Purána*, *Dherma*, and *Derſana*, are the *Six* great *Sáſtras*, in which all knowledge, divine and human, is ſuppoſed to be comprehended. And here we muſt not forget, that the word *Sáſtra*, derived from a root ſignifying *to ordain*, means generally an *ordinance*, and particularly a *ſacred ordinance*, delivered by inſpiration. Properly, therefore, this word is applied only to *ſacred literature*, of which the text exhibits an accurate ſketch.

The *Súdra's*, or *fourth* claſs of *Hindus*, are not permitted to ſtudy the *ſix* proper *Sáſtra's* before enumerated; but an ample field remains for them in the ſtudy of *profane literature*, compriſed in a multitude of *popular* books, which correſpond with the ſeveral *Sáſtra's*, and abound with beauties of every kind. All the tracts on *Medicine* muſt, indeed, be ſtudied by the *Vaidya's*, or thoſe who are born phyſicians; and they have often more learning, with far leſs pride, than any of the *Bráhmans*. They are uſually poets, grammarians, rhetoricians, moraliſts; and may be eſteemed in general the moſt virtuous and amiable of the *Hindus*. Inſtead of the *Véda's*, they ſtudy the *Rájanîti*, or *Inſtruction of Princes*; and, inſtead of *Law*, the *Nîtiſáſtra*, or general Syſtem of *Ethicks*. Their *Sahitia*, or *Cávya Sáſtra*, conſiſts of innumerable poems, written chiefly by the *medical* tribe, and ſupplying the place of the *Purána's*, ſince they

they contain all the ſtories of the *Rámáyana*, *Bhárata*, and *Bhágawata*. They have acceſs to many treatiſes of *Alancára*, or Rhetorick, with a variety of works in modulated Proſe. To *Upác'hyána*, or Civil Hiſtory, called alſo *Rájatarangini*; to the *Náṭaca*, which anſwers to the *Gándharvavéda*, conſiſting of regular *Dramatick* pieces in *Sanſcrit* and *Prácrit*: beſides which, they commonly get by heart ſome entire dictionary and grammar. The beſt lexicon or vocabulary was compoſed in verſe, for the aſſiſtance of the memory, by the illuſtrious *Amaraſinha*; but there are *ſeventeen* others in great repute. The beſt grammar is the *Mugdhabódha*, or the *Beauty of Knowledge*, written by a *Góſwámi*, named *Vópadéva*, and comprehending, in two hundred ſhort pages, all that a learner of the language can have occaſion to know. To the *Cóſha's*, or dictionaries, are uſually annexed very ample *Tícá's*, or *Etymological* Commentaries.

We need ſay no more of the heterodox writings, than that thoſe on the religion and philoſophy of *Buddha*, ſeem to be connected with ſome of the moſt curious parts of *Aſiatick* Hiſtory, and contain, perhaps, all that could be found in the *Páli*, or *ſacred language*, of the Eaſtern *Indian* Peninſula. It is aſſerted in *Bengal*, that *Amaraſinha* himſelf was a *Baudha*; but he ſeems to have been a theiſt of tolerant principles, and, like *Abu'lfazl*, deſirous of reconciling the different religions of *India*.

Wherever we direct our attention to *Hindu* Literature, the notion of *infinity* preſents itſelf; and the longeſt life would not be ſufficient for the peruſal of near five hundred thouſand ſtanzas in the *Purána's*, with a million more perhaps in the other works before mentioned. We may, however, ſelect the beſt from each *Sáſtra*, and gather the fruits of ſcience, without loading ourſelves with the leaves and branches; while we have the pleaſure

pleaſure to find, that the learned *Hindus*, encouraged by the mildneſs of our government and manners, are at leaſt as eager to communicate their knowledge of all kinds as we can be to receive it. Since *Europeans* are indebted to the *Dutch* for almoſt all they know of *Arabick*, and to the *French* for all they know of *Chineſe*, let them now receive from our nation the firſt accurate knowledge of *Sanſcrit*, and of the valuable works compoſed in it. But, if they wiſh to form a correct idea of *Indian* religion and literature, let them begin with forgetting all that has been written on the ſubject, by ancients or moderns, before the publication of the *Gîtà*.

To the PRESIDENT.

MY DEAR SIR,

I HEREWITH ſend you ſix ancient Copper-Plates, faſtened together by a Ring in two Parcels, each containing Three. They were found in digging for ſome new Works at the Fort of *Tanna*, the Capital of *Salſet*. The Governor of *Bombay* informed me, none of the *Gujerat Brahmins* could explain the Inſcriptions. I obtained Permiſſion to bring them round with me, being deſirous of ſubmitting them to the inveſtigation of the *Aſiatick Society*, under the Promiſe of reſtoring them to the Proprietor.

I have the honour to be with great Reſpect,

Dear SIR WILLIAM,

Your moſt faithful humble Servant,

J. CARNAC.

February 15*th*, 1787.

XIX.

AN INDIAN GRANT OF LAND

In Y. C. 1018.

Literally Tranſlated from the Sanſcrit,

As Explained by Ra'malo'chan Pandit.

COMMUNICATED BY

GENERAL CARNAC.

O'M. Victory and Elevation!

STANZAS.

MAY He, who in all affairs claims precedence in adoration; may that *Gan anáyaca*, averting calamity, preſerve you from danger!

2. May that *Siva* conſtantly preſerve you, on whoſe head ſhines *(Gangá)* the daughter of *Jahnu*, reſembling-the-pure-creſcent-riſing-from-the-ſummit-of-*Sumêru*! *(A compound word of ſixteen ſyllables.)*

3. May that God, the cauſe of ſucceſs, the cauſe of felicity, who keeps, placed even by himſelf on his forehead a ſection of the-moon-with-cool-beams, drawn-in-the-form-of-a-line-reſembling-that-in-the-infinitely-bright-ſpike-of-a-freſh-blown-*Cétaca* (who is) adorned-with-a-grove-of-thick-red-locks-tied-with-the-Prince-of-Serpents, be always preſent and favourable to you!

4. The

4. The ſon of *Jímútacétu*, ever affectionate, named *Jímútaváhana*, who, ſurely, preſerved (the Serpent) *Sanc'hachúda* from *Garuda*, *(the Eagle of Viſhnu,)* was famed in the three worlds, having neglected his own body, as if it had been graſs, for the ſake of others.

5. *(Two couplets in rhyme.)* In his family was a monarch *(named) Capardin*, (or, *with thick hair*, a title of *Mahádéva,)* chief of the race of *Sílára*, repreſſing the inſolence of his foes: and from him came a ſon, named *Pulaśacti*, equal in increaſing glory to the ſun's bright circle.

6. When that ſon of *Capardin* was a new-born infant, through fear of him, homage was paid by all his collected enemies, with water held aloft in their hand, to the delight of his realm.

7. From him came a ſon, the only warrior on earth, named *Srívappuvanna*, a hero in the theatre of battle.

8. His ſon, called *Srí Jhanjha*, was highly celebrated, and the preſerver of his country. He afterwards became the Sovereign of *Gógni*: he had a beautiful form.

8. From him *came* a ſon, whoſe-renown was-far-extended-*and*-*who*-confounded-the-mind-with-his-wonderful-acts, the fortunate *Bajjada Déva*. He was a monarch, a gem in-the-diadem-of-the-world's-circumference; who uſed only the forcible weapon of his two arms readily on the plain of combat; and in whoſe boſom the Fortune of Kings herſelf amorouſly played, as *in the boſom* of the foe of *Mura*, (or *Viſhnu.)*

9. Like

9. Like *Jayanta, ſon* to the foe of *Vritta,* (or *Indra,*) like *Shanmuc'ha,* (or *Carticéya,*) *ſon* to *Purári,* (or *Mahádéva,*) then ſprang from him a fortunate ſon. with a true heart, invincible;

10. Who in liberality was *Carna* before our eyes, in truth even *Yudhiſhthira,* in glory a blazing Sun, and the rod of *Cála* (or *Yama, judge of the infernal regions*) to his enemies.

11. By whom the great counſellors, who were under his protection, *and* others near *him,* are preſerved in this world. He is a conqueror, named with propriety *Saranágata Vajrafanjaradéva.*

12. By whom when this world was over-ſhadowed with-continual-preſents-of-gold, for his liberality he was named *Jagadarthi,* (or *Enriching the World,*) in the midſt of the three regions of the univerſe.

13. Thoſe Kings aſſuredly, whoever they may be, who are endued with minds capable of ruling their reſpective dominions, praiſe him for the greatneſs of his veracity, generoſity, and valour; *and* to thoſe Princes who are deprived of their domains, and ſeek his protection, he allots a firm ſettlement. May he, the grandfather of the *Ráya,* be victorious! *He is* the ſpiritual guide of *his* counſellors, *and they are* his pupils. Yet farther,

14. He, by whom the title of *Gómmáya* was conferred on *a perſon* who attained the object of his deſire; by whom the realm, ſhaken by a man named *Eyapadéva,* was even made firm; and by whom, being the Prince of *Mamalambuva,* (I ſuppoſe, *Mambéï,* or *Bombay,*) ſecurity

curity from fear was given to me broken *with affliction.* He was the King, named *Srí Virudanca.* How can he be otherwiſe painted? *(Here ſix ſyllables are effaced in one of the Grants; and this verſe is not in the other.)*

15. His ſon *was* named *Bajjadadéva,* a gem on the forehead of monarchs, eminently ſkilled in morality; whoſe deep thoughts all the people, clad in horrid armour, praiſe even to this day.

16. Then was born his brother, the Prince *Aricéfari,* (a lion among his foes,) the beſt of good men; who, by overthrowing the ſtrong mountain of his proud enemies, did the act of a thunder-bolt; having formed great deſigns even in his childhood, and having ſeen the Lord of the Moon *(Mahádéva) ſtanding* before him, he marched by his father's order, attended by his troops, and by valour ſubdued the world.

Yet more ——————.

17. Having raiſed up his ſlain foe on his ſharp ſword, he ſo afflicted the women in the hoſtile palaces, that their forelocks fell diſordered, their garlands of bright flowers dropped from their necks on the vaſes of their breaſts, and the black luſtre of their eyes diſappeared.

18. A *warriour,* the plant of whoſe fame grows up over the temple of *Brahmá's* Egg, (the univerſe,) from-the-repeated-watering-of-it-with-the-drops-that-fell-from-the-eyes-of-the-wives-of-his-ſlaughtered-foe.

Afterwards by the multitude of his innate virtues *(then follows a compound word of a hundred and fifty-two ſyllables)*

ſyllables)the-fortunate-*Aricéſari-Dévarája*-Lord-of.the-great-circle-adorned-with-all-the-company-of-princes-with-*Vajrapanjara*-of-whom-men-ſeek-the-protection-an-elephant's-hook-in-the-forehead-of-the-world-pleaſed-with-encreaſing-vice-a-Flamingo-bird-in-the-pool-decked-with-flowers-like-thoſe-of-paradiſe-and-with-*Aditya-Pandita*-chief-of-the-diſtricts-of-the-world-through-the-liberality-of-the-Lord-of-the-Weſtern-Sea-holder-of-innate-knowledge-who-bears-a-golden-eagle-on-his-ſtandard-deſcended-from-the-ſtock-of-*Jímútaváhana*-king-of-the-race-of-*Silár*-Sovereign-of-the-city-of-*Tagara*-Supreme-ruler-of-exalted-counſellors-aſſembled-when-extended-fame-had-been-attained *(the monarch* thus deſcribed) governs-the-whole-region-of-*Cóncana*-conſiſting-of-fourteen-hundred-villages-with-cities-and-other-places-comprehended-in-many-diſtricts-acquired-by-his-arm. Thus he ſupports the burden of thought concerning this domain. The Chief-Miniſter *śrí Váſapaiya, and* the very-religiouſly-purified *śrí Várdhiyapaiya*, being at this time preſent, he, the fortunate *Aricéſaridévarája*, Sovereign of the Great Circle, *thus addreſſes* even all who inhabit-the-city-*śrí Sthánaca, (or the Manſion of Lacſhmi,)* his-own-kinſmen-and-others-there-aſſembled, princes-counſellors-prieſts-miniſters-ſuperiors-inferiors-ſubject-to-his-commands,alſothe-lords-of-diſtricts-the-governors-of-towns-chiefs-of-villages-the-maſters-of-families-employed-or-unemployed-ſervants-of-the-King-and-*his*-countrymen. Thus he greets all-the-holy-men-and-others-inhabiting-the-city-of-*Hanyamana*: Reverence be to you, as it is becoming, with all the marks of reſpect, ſalutation, and praiſe!

STANZA.

Wealth is inconſtant; youth, deſtroyed in an inſtant; *and* life,placed between the teeth of *Critanta, (or Yama, before mentioned.)*

Nevertheleſs, neglect *is ſhown* to the felicity of departed anceſtors. Oh! how aſtoniſhing are the efforts of men!

And thus.—Youth is publickly-ſwallowed-up-by-the-giantess Old-Age-admitted-into-its-inner-manſion; and thebodily-frame-is-equally-obnoxious-to-the-aſſault-of-death-of-age-and-the-miſery-born-with-man-of-ſeparation-between-united-friends-like-falling-from-heaven-into-the-lower-regions. Riches and life are two things more-moveable than-a-drop-of-water-trembling-on-the-leaf-of-a-lotos-ſhaken-by-the-wind: and the world is like-the-firſt delicate-foliage-of-a-plantain-tree. Conſidering this in ſecret with a firm diſpaſſionate underſtanding, and alſo the fruit of liberal donations mentioned *by the wife, I called to mind theſe*

STANZAS.

1. In the *Satya*, *Trétá* and *Dwáper* Ages, great piety was celebrated: but in this *Caliyuga*, the *Muni's* have nothing to commend but liberality.

2. Not ſo productive of fruit is learning, not ſo productive is piety, as liberality, ſay the *Muni's*, in this *Cali* Age. And thus was it ſaid by the Divine *Vyáſa*.

3. Gold *was* the firſt offspring of Fire; the Earth *is* the daughter of *Viſhnu*, and kine are the children of the Sun: the three worlds, *therefore*, are aſſuredly given by Him, who makes a gift of gold, earth, and cattle.

4. *Our* deceaſed fathers clap their hands, *our* grandfathers exult; *ſaying*, "A donor of land is born in our "family: he will redeem us."

5. A

5. A donation of land to good perſons, for holy pilgrimages, and on the (five) ſolemn days of the moon, is the mean of paſſing over the deep boundleſs océan of the world.

6. White paraſols, and elephants mad with pride, (the *inſignia* of royalty,) *are* the flowers of a grant of land: the fruit is *Indra* in heaven.

Thus, confirming the declaration of the-ancient-*Muni's*-learned-in-the-diſtinction-between-juſtice-and-injuſtice, for the ſake of benefit to my mother, my father, and myſelf, on the fifteenth of the bright moon of *Cártica*, in the middle of the year *Pingala*, (perhaps of the *Serpent*,) when nine hundred and forty years, ſave one, are reckoned as paſt from the time of King *Saca*, or in figures, the year 939, of the bright moon of *Cártica* 15; (that is, 1708—939=769 years ago from Y. C. 1787.) The moon being then full and eclipſed, I having bathed in the oppoſite ſea reſembling-the-girdles-round-the-waiſt-of-the-female-Earth, tinged-with-a-variety-of-rays-like-many-exceedingly-bright-rubies-pearls-*and-other*-gems, with-water-whoſe-mud-was-become-muſk-through-the-frequent-bathing-of-the-fragrant-boſom-of-beautiful-Goddeſſes-riſing-up-after-having-dived-in-it;-and having offered to the ſun, the divine luminary, the-gem-of-one-circle-of-heaven, eye-of-the-three-worlds, Lord-of-the lotos, a diſh embelliſhed-with-flowers-of-various-ſorts, (this diſh is filled with the plant *Darbha*, rice in the huſk, different flowers, and ſandal,) have granted to him, who has viewed the preceptor of the Gods and of Demons, who has adored the Sovereign Deity, the-huſband-of-*Ambicá*,(or *Durgá*,) has ſacrificed-cauſed-others-to-ſacrifice,-has-read-cauſed-others-to-read-and-has-performed-the-reſt-of-the-ſix(ſacerdotal)functions; who-is-eminently-ſkillful-in-the-whole-buſineſs-of-performing-ſacrifices,who-

has-held-up-the-root-and-ſtalk-of-the-ſacred-lotos; who-inhabits-the-city-*Sri St'hánaca, (or abode of Fortune,)* deſcended from *Jamadagni;* who-performs-due-rites-in-the-holy-ſtream; who-diſtinctly-knows-the-myſterious-branches, (of the *Véda*,) the domeſtick prieſt, the reader, *Srī Ticcapaiya*, ſon of *Srī Chch'hintapaiya*, the aſtronomer, for the purpoſe of ſacrificing-cauſing-others-to-ſacrifice-reading-cauſing-others-to-read-and-diſcharging-the-reſt-of-the-ſix (ſacerdotal-) duties, of performing-the (daily ſervice of) *Vaiſwadéva* with offerings of rice, milk, and materials of ſacrifice, and-of-completing-with due-ſolemnity the ſacrifice-of-fire-of-doing-ſuch-acts-as-muſt-continually-be-done, and ſuch-as-muſt-occaſionally be-performed, of paying-due-honours to gueſts and ſtrangers, and-of-ſupporting his-own-family, the village of *Chávinára*-ſtanding-at-the-extremity of-the-territory of *Vatſarája*, and the boundaries of which *are*, to the eaſt, the village of *Púagambà*, and a water-fall-from a mountain; to the ſouth, the villages of *Nágámbá* and *Múládóngaricà;* to the weſt, the river *Sámbarapallicà;* to the north, the villages of *Sámbivè* and *Cátiyálaca;* and beſides this the full *(diſtrict)* of *Tócabalà Pallicà*, the boundaries of which *are* to the eaſt, *Sídábali;* to the ſouth, the river *Mót'hala;* to the weſt, *Cácádéva*, *Hallapallicà*, and *Bádaviraca;* to the north, *Talávalì Pallicà;* and alſo the village of *Aulacíyá*, the boundaries of which (are) to the eaſt, *Tádága;* to the ſouth, *Góviné;* to the weſt, *Charicà;* to the north, *Calibalà-yachóli:* (that land) thus ſurveyed-on-the-four-quarters-and limited-to-its-proper-bounds, with-its-herbage-wood-and-water, and with power-of-puniſhing-for-the-ten-crimes, except that before given as the portion of *Déva*, or of *Brahmà*, I have hereby releaſed, and limited-by-the-duration-of-the-ſun-the-moon-and-mountains, confirmed-with-the-ceremony-of adoration, with a copious effuſion of water, and with the higheſt acts-of-worſhip; *and the ſame land* ſhall be enjoyed by his lineal-and-collateral-heirs, or cauſed-to-be-enjoyed, nor ſhall diſturbance be given by any

any perſon whatever; ſince it is thus declared by great *Muni's*.

STANZAS.

1. The earth is enjoyed by many kings, by *Sâgar*, and by others: to whomſoever the ſoil at any time belongs, to him at that time belong the fruits of it.

2. A ſpeedy gift is attended with no fatigue; a continued ſupport, with great trouble: therefore even the *Riſhi's* declare, that a continuance of ſupport is better than a ſingle gift.

3. Exalted Emperors, of good diſpoſitions, have given land, as *Rámabhadra* adviſes, again and again: this is the true bridge of juſtice for ſovereigns; from time to time (O Kings) that bridge muſt be repaired by you.

4. Thoſe poſſeſſions here below, which have been granted in former times by ſovereigns, given for-the-ſake-of-religion-increaſe-of-wealth-or-of-fame, are exactly equal to flowers, which have been offered to a Deity: what good man would reſume *ſuch gifts?*

Thus, confirming the precepts of ancient *Muni's*, all future kings muſt gather the fruit-of-obſerving-religious-duties; and let not the ſtain-of-the-crime-of-deſtroying-this-*grant* be borne henceforth by any-one; ſince, whatever *prince*, being ſupplicated, ſhall, through avarice, having-his-mind-wholly-ſurrounded-with-the-gloom-of-ignorance-contemptuouſly-diſmiſs-the-injured-ſuppliant, he, being guilty of five great and *five* ſmall crimes,

crimes, ſhall long in darkneſs inhabit *Raurava*, *Mahâ-raurava*, *Andha*, *Támiſra*, and the other places of puniſhment. And thus it is declared by the divine *Vyáſa*:

STANZAS.

1. He who ſeizes land, given-by-himſelf, or by-another, (ſovereign,) will rot among worms, himſelf a worm, in the midſt of ordure.

2. They who ſeize granted-land, are born again, living with great fear in dry cavities of trees in the unwatered foreſts on the *Vinddhian* (mountains.)

3. By ſeizing one cow, one veſture, or even one nail's breadth of ground, *a king* continues in hell till an univerſal deſtruction of the world has happened.

4. By (a gift of) a thouſand gardens, and by (a gift of) a hundred pools of water, by (giving) a hundred *lac* of oxen, a diſſeiſor of (granted) land is not cleared from offence.

5. A grantor of land remains in heaven ſixty thouſand years; a diſſeiſor, and he who refuſes to do juſtice, continues as many (years) in hell.

And, agreeably to this, in what is written by the hand of the Secretary, (the King) having ordered it, declares his own intention; as it is written by the command of me, Sovereign of the Great Circle, the fortunate *Aricéſari Dévarája*, ſon of the Sovereign of the Great Circle, the Fortunate, Invincible, *Dévarája*.

And

And this is written, by order of the Fortunate King, by me *Jó-uba*, the brother's-ſon-of *śré Nágalaiva*-the-great-Bard,-dwelling-in the royal palace: engraved-on-plates-of-copper by *Vêdapaiya's* ſon *Mâna Dhára Paiya*. Thus (it ends.)

Whatever herein (may be) defective in-one-ſyllable, or have-one-ſyllable-redundant, all that is (nevertheleſs) complete evidence (of the grant.) Thus (ends the whole.)

TO

TO THE PRESIDENT.

DEAR SIR,

I DO myſelf the honour to ſend you a few Remarks on *Tagara*, and beg leave to ſubmit them to your Judgment. Inquiries of that kind are generally very dry; and unluckily I have no talent for amplification. I have collected all I could find in the ancient authors, and endeavoured, by bringing the whole together, to elucidate a ſubject which muſt be intereſting to the *Aſiatick Society;* and this, I hope, will ſecure me their indulgence. I have been as ſparing as poſſible of *Greek* quotations: I am not fond of them; however, I have ventured a few, which I thought abſolutely neceſſary. With reſpect to the *hiſtorical* part, you will find, I am not converſant with the *Hindu* Antiquities: indeed, I have no time to ſtudy languages.

I am,

DEAR SIR,

Your moſt obedient humble Servant,

F. WILFORD.

Ruſſapuglà, June 10, 1787.

REMARKS

REMARKS

ON THE

CITY OF TAGARA.

By Lieut. FRANCIS WILFORD.

THE expedition of *Alexander* having made the *Greeks* acquainted with the riches of *India*, they ſoon diſcovered the way by ſea into that country; and, having entered into a commercial correſpondence with the natives, they found it ſo beneficial, that they attempted a trade hither.

Ptolemy Philadelphus, king of *Egypt*, in order to render the means eaſy to merchants, ſent one *Dionyſius* into the ſouthern parts of *India*, to inquire into the nature of that country, its produce and manufactures.

It was then *Tagara* began to be known to the *Greeks*, about 2050 years ago.

Arrian, in his *Periplus Maris Erythræi*, ſays it was a large city, and that the produce of the country, at that early period, conſiſted chiefly of coarſe *Dungarees*, *(Othonium vulgare,)* of which vaſt quantities were exported; muſlins of all ſorts, *(Sindones omnis generis;)* and a kind of cotton ſtuff, dyed of a whitiſh purple, and very much of the colour of the flowers of mallows, whence called *Molochyna*.

All kinds of mercantile goods throughout the *Deccan* were brought to *Tagara*, and from thence conveyed on carts to *Baroach*, *(Barygaza.)*

Arrian

Arrian informs us, that *Tagara* was about ten days journey to the eaſtward of another famous mart, called *Plithana*, or *Plúthana*.

That *Plúthana* was twenty days journey to the ſouthward of *Baroach*. Alſo,

That the road was through the *Bala-gaut* mountains.

And here we muſt obſerve, that the *Latin* tranſlation of the *Periplus* * by *Stuckius* is very inaccurate, and often erroneous; as in the following paſſage, where *Arrian*, ſpeaking of *Tagara*, ſays

"Καταγεται δε εξ αυτων πορειαις αμαξων και ανοδιαις μεγιζαις εις την Βαρυγαζαν:"

which *Stuckius* tranſlates thus:

"Ex his autem emporiis, *per loca invia et difficillima*, "*res* Barygazam plauſtris *convehuntur*."

But it ſhould be,

"Ex his autem emporiis, *per maximos aſcenſus*, res "Barygazam *deorſum feruntur*."

Καταγω ſignifies *deorſum ferre*, (to bring down,) not *convehere*.

Ανδιαι μεγιζαι ſhould be tranſlated *per maximos aſcenſus*. Ανοδια, or ανοδος, in this place, ſignifies *an aſcent, a road over hills*; and this meaning is plainly pointed out by the words καταγεται and μεγιζαις.

* Geographiæ veteris Scriptores Græci minores. Vol. I.

In ſhort, ανοδιαι μεγιϛαι is the true tranſlation of the *Hindoo* word *Bala-gaut*, the name of the mountains through which the goods from *Tagara* to *Baroach* uſed to be conveyed.

This paſſage in *Arrian* is the more intereſting, as it fixes the times when the *Bala-gaut* Mountains were firſt heard of in *Europe*.

The bearing from *Tagara* to *Plúthana* is expreſsly mentioned by *Arrian*, (προϛ ανατολην,) but is left out by *Stuckius*.

Plúthana is an important point to be ſettled, as it regulates the ſituation of *Tagara*.

It ſtill exiſts, and goes nearly by the ſame name, being called to this day *Pultanah*. It is ſituated on the ſouthern bank of the *Godávery*, about 217 Britiſh miles to the ſouthward of *Baroach*.

Theſe 217 miles being divided by twenty, the number of days travellers were between *Pultanah* and *Baroach*, according to *Arrian*, give nearly eleven miles per day, or five coſs, which is the uſual rate of travelling with heavy loaded carts.

The onyx, and ſeveral other precious ſtones, are ſtill found in the neighbourhood of *Pultanah*, as related by *Arrian*; being waſhed down by torrents from the hills during the rains, according to *Pliny*.

Arrian informs us, that the famous town of *Tagara* was about ten days journey to the eaſtward of *Pultanah*.

According

According to the above proportion, theſe ten days (or rather ſomewhat leſs *) are equal to about 100 Britiſh miles; and conſequently *Tagara*, by its bearing and diſtance from *Pultanah*, falls at *Deoghir*, a place of great antiquity, and famous through all *India*, on account of the *Pagodas* of *Eloura*. It is now called *Doulet-abad*, and about four coſs N. W. of *Aurungabad*.

Ptolemy agrees very well with *Arrian*, with reſpect to diſtances and bearings, if we admit that he has miſtaken *Baithana*, or *Paithana*, for *Plithana*; and this, I am pretty ſure, is really the caſe, and may be eaſily accounted for, as there is very little difference between ΠΑΙΘΑΝΑ and ΠΑΙΘΑΝΑ in the *Greek* character.

Paithana, now *Pattan*,† or *Puttan*, is about half way between *Tagara* and *Plithana*.

According to *Ptolemy*, *Tagara* and *Pattan* were ſituated to the northward of the *Baund-Ganga*, (*Binda* or *Bynda* river,) commonly called *Godávery*; and here *Ptolemy* is very right.

In *M. Buſſy's marches*, *Pattan* is placed to the ſouthward of the *Godávery*; but it is a miſtake.

It appears from *Arrian's Periplus*, that, on the arrival of the *Greeks* into the *Deccan*, above 2000 years ago, *Tagara* was the *metropolis* of a large diſtrict called *Ariaca*, which comprehended the greateſt part of Subah *Aurungabad*, and the ſouthern part of *Concan*; for the northern part of that diſtrict, including *Damaun Callian*, the Iſland of *Salſet*, *Bombay*, &c. belonged to the *Raja*

* Ὡς ἡμερῶν δέκα quaſi dies decem.

† *Patinæ* Tab. Peutinger. *Patinna* Anonym. Ravenn.

of *Larikeh*, or *Lar*, according to *Arrian* and *Ebn Saïd al Magrebi*.

It is neceſſary to obſerve here, that, though the author of the *Periplus* is ſuppoſed to have lived about the year 160 of the preſent era, yet the materials he made uſe of in compiling his directory are far more ancient; for, in ſpeaking of *Tagara*, he ſays that the *Greeks* were prohibited from landing at *Callian*, and other harbours on that coaſt. Now it is well known that, after the conqueſt of *Egypt*, the *Romans* had monopolized the whole trade to *India*, and would allow no foreigners to enter the Red Sea; and conſequently this paſſage has reference to an earlier period, previous to the conqueſt of *Egypt* by the *Romans*.

About the middle of the firſt century, *Tagara* was no longer the capital of *Ariaca*, *Rajah Salbahan* having removed the ſeat of the empire to *Pattan*.

Ptolemy informs us, that *Paithana*, or *Pattan*, had been the reſidence of a prince of that country, whoſe name the *Greeks* have ſtrangely disfigured: we find it variouſly ſpelt, in different MSS. of *Ptolemy*, *Siripolemæus*, *Siropolemæus*, *Siroptolemæus*, *&c.*

Yet, when we conſider that, whenever *Pattan* is mentioned by the *Hindoos*, they generally add, it was the reſidence of *Rajah Salbahan*,* who, in the dialect of the *Deccan*, is called *Salivanam*, or *Salibanam*, I cannot help thinking that the *Greeks* have disfigured this laſt word *Salibanam* into *Saripalam*, from which they have made *Siripolemæus*, *Siropolemæus*, *&c.*

Bickermajit ruled for ſome time over the northern parts of the *Deccan*; but the *Rajahs*, headed by *Salbahan*, having

* Making use of the very words of Ptolemy.

having revolted, they gave him battle, and he was ſlain. *Tagara* became again the *metropolis* of *Ariaca*; it was ſo towards the latter end of the eleventh century, as appears from a grant of ſome lands in *Concan*, made by a *Rajah* of *Tagara*: this grant ſtill exiſts, and was communicated to the *Aſiatick Society* by General *Carnac*.

When the *Muſſulmans* carried their arms into the *Deccan* about the year 1293, *Tagara*, or *Deoghir*, was ſtill the reſidence of a powerful *Rajah*, and remained ſo till the time of *Shah-Jehan*, when the diſtrict belonging to it became a *Subah* of the *Mogul* Empire. Then *Tagara* was deſerted; and *Kerkhi*, four coſs to the ſouth-eaſt of it, became the capital. This place is now called *Aurungabad*.

Thus was deſtroyed the ancient kingdom or *Rajaſhip* of *Tagara*, after it had exiſted with little interruption above 2000 years; that is to ſay, as far as we can trace back its antiquity.

It may appear aſtoniſhing, that though the *Rajah* of *Tagara* was poſſeſſed of a large tract on the ſea-coaſt, yet all trade was carried on by land.

Formerly it was not ſo. On the arrival of the *Greeks* into the *Deccan*, goods were brought to *Callian*, near *Bombay*, and then ſhipped off. However, a *Rajah* of *Larikeh*, or *Lar*, called *Sandanes*, according to *Arrian*, would no longer allow the *Greeks* to trade either at *Callian*, or at the harbours belonging to him on that coaſt, except *Baroach*; and whenever any of them were found at *Callian*, or in the neighbourhood, they were confined, and ſent to *Baroach* under a ſtrong guard. *Arrian*, being a *Greek* himſelf, has not thought proper to inform us what could induce the *Rajah* to behave in this manner to the *Greeks*; but his ſilence is a convinc-

ing proof that they had behaved amiſs; and it is likely enough, that they had attempted to make a ſettlement in the Iſland of *Salſet*, in order to make themſelves independent, and facilitate their conqueſts into the *Deccan*.

The fears of the *Rajah* were not groundleſs; for the *Greek* kings of *Bactriana* were poſſeſſed of the *Punjah*, *Cabul*, &c. in the North of *India*.

There were other harbours, to the ſouth of *Callian*, belonging to the *Rajah* of *Tagara*, but they were not frequented on account of *pirates*, who, according to *Pliny*, *Arrian*, and *Ptolemy*, infeſted theſe countries in the very ſame manner they do now.

XX.

ON THE PANGOLIN OF BAHAR.

BY

MATTHEW LESLIE, Esq.

THE ſingular animal which M. *Buffon* deſcribes by the name of *Pangolin*, is well known in *Europe* ſince the publication of his Natural Hiſtory, and *Goldſmith's* elegant Abridgment of it; but, if the figure exhibited by *Buffon* was accurately delineated from the three animals, the ſpoils of which he had examined, we muſt conſider that which has been lately brought from *Caracdiah* to *Chitra*, and ſent thence to the Preſidency, as a remarkable variety, if not a different ſpecies, of the *Pangolin*. Ours has hardly any neck; and, though ſome filaments are diſcernible between the ſcales, they can ſcarce be called briſtles. But the principal difference is in the tail; that of *Buffon's* animal being long, and tapering almoſt to a point; while that of ours is much ſhorter, ends obtuſely, and reſembles, in form and flexibility, the tail of a lobſter. In other reſpects, as far as we can judge from the dead ſubject, it has all the characters of Buffon's *Pangolin*; a name derived from that by which the animal is diſtinguiſhed in *Java*, and conſequently preferable to *Manis*, or *Pholidotus*, or any other appellation deduced from an *European* language. As to the *ſcaly lizard*, the *ſcaled armadillo*, and the *five-nailed ant-eater*, they are manifeſtly improper deſignations of this animal; which is neither a *lizard*, nor an *armadillo*, in the common acceptation; and, though it be an *ant-eater*, yet it eſſentially differs from the *hairy* quadruped uſually known by that general deſcription. We are told that the *Malabar* name of this animal is *Alungu*. The natives of *Bahar* call it *Bajar-cît*, or, as they explain the word, *ſtone-vermine*

Vol. I. THE VAJRACÍTA. P. 376.

vermine; and in the ſtomach of the animal before us was found about a teacupful of ſmall ſtones, which had probably been ſwallowed for the purpoſe of facilitating digeſtion: but the name alludes, I believe, to the hardneſs of the ſcales; for *Vajracíta* means, in *Sanſcrit*, the *diamond* or *thunderbolt reptile*; and *Vajra* is a common figure in the *Indian* poetry for any thing exceſſively hard. The *Vajracíta* is believed by the *Pandits* to be the animal which gnaws their *ſacred ſtone*, called *Sálgrámaśílà*; but the *pangolin* has apparently no teeth and the *Sálgráms*, many of which look as if they had been worm-eaten, are perhaps only decayed in part by expoſure to the air.

This animal had a long tongue, ſhaped like that of a cameleon; and if it was nearly adult, as we may conclude from the young one found in it, the dimenſions of it were much leſs than thoſe which *Buffon* aſſigns generally to his *pangolin*; for he deſcribes its length at ſix, ſeven, or eight feet, including the tail, which is almoſt, he ſays, as long as the body, when it has attained its full growth; whereas ours is but thirty-four inches long, from the extremity of the tail to the point of the ſnout, and the length of the tail is fourteen inches; but, excluſively of the head, which is five inches long, the tail and body are, indeed, nearly of the ſame length; and the ſmall difference between them may ſhow, if *Buffon* be correct in this point, that the animal was young. The circumference of its body in the thickeſt part is twenty inches, and that of the tail only twelve.

We cannot venture to ſay more of this extraordinary creature, which ſeems to conſtitute the firſt ſtep from the quadruped to the reptile, until we have examined it alive, and obſerved its different inſtincts; but as we are aſſured that it is common in the country round

Khánpúr, and at *Chátigám*, where the native *Musulmans* call it the *land-carp*, we ſhall poſſibly be able to give, on ſome future occaſion, a fuller account of it. There are in our *Indian* provinces many animals, and many hundreds of medicinal plants, which have either not been deſcribed at all, or, what is worſe, ill deſcribed, by the naturaliſts of Europe: and, to procure perfect deſcriptions of them from actual examination, with accounts of their ſeveral uſes in medicine, diet, or manufactures, appears to be one of the moſt important objects of our inſtitution.

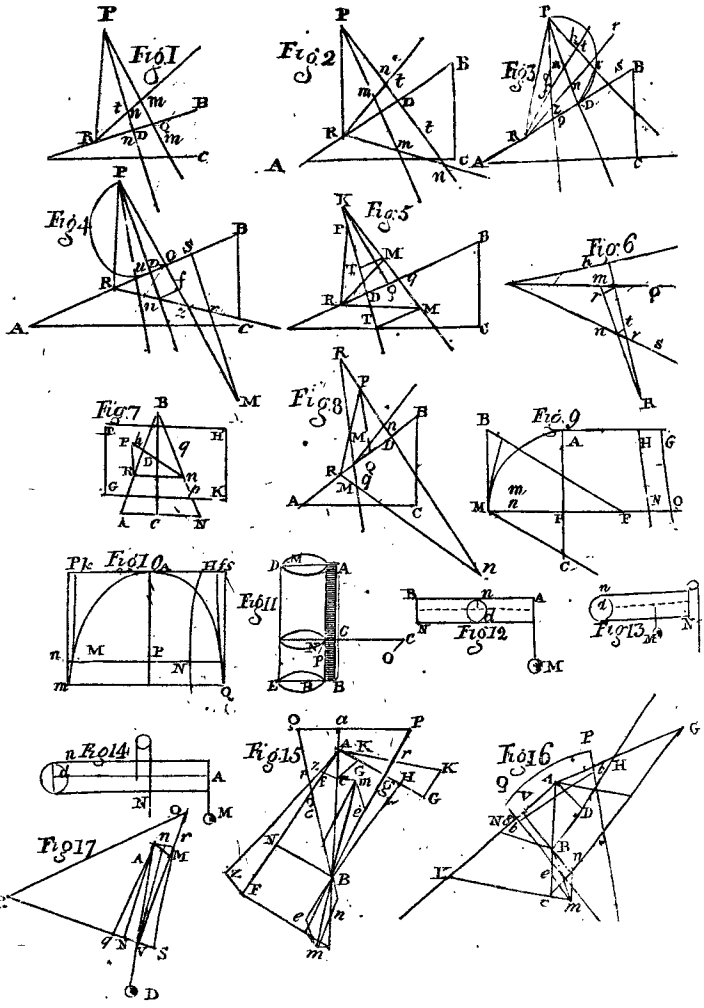


Fig. 1
Fig. 2
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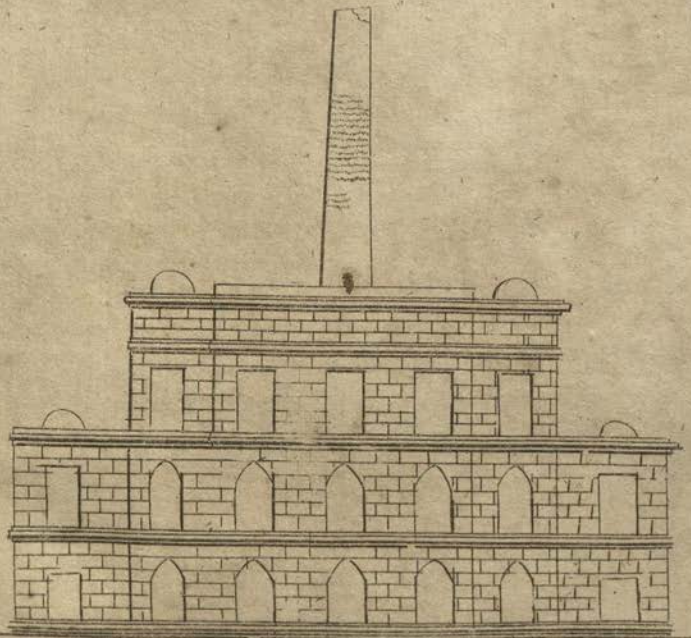
Fig. 17



The Staff of Fíróz Sháh.

XXI.

INSCRIPTIONS

ON THE

STAFF OF FIRUZ SHAH.

TRANSLATED FROM THE SANSCRIT.

As explained by RADHACANTA SARMAN.

ON a very ſingular monument near *Dehli*, an outline of which is here exhibited, and which the natives call the *Staff of Fíruz Shah*, are ſeveral old Inſcriptions, partly in ancient *Nágarì* letters, and partly in a character yet unknown; and Lieutenant Colonel *Polier*, having procured exact impreſſions of them, preſents the Society with an accurate copy of all the Inſcriptions. Five of them are in *Sanſcrit*, and, for the moſt part, intelligible; but it will require great attention and leiſure to decypher the others. If the language be *Sanſcrit*, the powers of the unknown letters may, perhaps, hereafter be diſcovered by the uſual mode of decyphering; and that mode, carefully applied, even at firſt, may lead to a diſcovery of the language. In the mean time, a literal verſion of the legible Inſcriptions is laid before you. They are, on the whole, ſufficiently clear; but the ſenſe of one or two paſſages is at preſent inexplicable.

I.

The firſt, on the ſouthweſt ſide of the pillar, is perfectly detached from the reſt: it is about ſeventeen feet from the baſe, and two feet higher than the other inſcriptions.

O'M.

In the year 1230, on the firſt day of the bright half of the month *Vaiſáh'ch* (a monument) of the Fortunate-*Viſala-Déva*-ſon of the-Fortunate-*Amilla-Déva*,-King-of-*Sácamharì*.

II.

The next, which is engraved as a ſpecimen of the character, conſiſts of two ſtanzas in four lines; but each hemiſtich is imperfect at the end, the two firſt wanting *ſeven*, and the two laſt *five*, *ſyllables*. The word *Sácambharì* in the former inſcription, enables us to ſupply the cloſe of the *third* hemiſtich.

O'M.

As far as *Vindhya*, as far as *Himádri*, (the Mountain of Snow,) he was not deficient in celebrity . . . . . making *Aryáverta* (the Land of Virtue, *or India)* even once more what its name ſignifies . . . . . He having departed, *Prativáhamána Tilaca* (is) king of *Sácambharì*: (*Sácam* only remains on the monument.) By us (the region between) *Himawat* and *Vindhya* has been made tributary.

In the year from *Srì Vicramáditya* 123, in the bright half of the month *Vaiſách'h* . . . . . at that time the *Rájaputra Srì Sallaca* was Prime Miniſter.

The ſecond ſtanza, ſupplied partly from the laſt inſcription, and partly by conjecture, will run thus:

vritté ſa prativáhamána tilacah śácambharíbhúpatih
aſmábhih caradam vyadháyi himawadvindhyátavímaṅdalam

The

१। आविंध्यादाहिमाद्रेर्विभ्रविनविजूर्द्ध
आर्यावर्त्तंयथार्थंमुंनरपिकृंतवा।
व्रतसंप्रतिंवाहमानतिजकः शाकं
ॐ आलिःकरदंव्यभपिहिमवद्विध्या
सं वरंश्रीविक्रमादित्य१२२ वेशाखशुवि
त्रस्समायमहामहोव्राजप्रत्रश्रीसन्नव

The date 123 is here perfectly clear; at leaſt it is clear that only *three* figures are written, without even room for a cypher after them; whence we may gueſs that the double circle in the former inſcription was only an ornament, or the neutral termination *am*; if ſo, the date of *both* is the year of CHRIST *ſixty-ſeven*: but if the double circle be a *zero*, the monument of *Víſala Déva* is as modern as the year 1174, or *nineteen* years before the conqueſt of *Dehli* by *Shihá'bud'dín*.

III. and IV.

The two next Inſcriptions were in the ſame words; but the ſtanzas, which in the fourth are extremely mutilated, are tolerably perfect in the third, wanting only a few ſyllables at the beginning of the hemiſtichs:

yah cſhívéſhu prahartá nripatiſhu vinamatcandharéſhu praſannah
—vah śambi puríndrah jagati vijayatè víſala cſhónipálah
. . . da ſájnya éſha vijayì ſantánajánátmajah
. . púnán cſhemáſtu bruvatamudyógaś únyanmanah

He, who is reſentful to kings intoxicated with pride, indulgent to thoſe whoſe necks are humbled, an *Indra* in the city of *Cauſámbi*, (I ſuſpect *Cauſambi*, a city near *Haſtináp'ur*, to be the true reading,) *who* is victorious in the world, *Viśala*, ſovereign of the earth; he gives . . . his commands being obeyed, he is a conqueror, the ſon of *Santánajána*, whoſe mind, when his foes ſay, "Let there be mercy," is free from further hoſtility.

This inſcription was engraved, in the preſence of *Srì Talaca Rája*, by *Srípati*, the ſon of *Máhava*, a *Cáyaſt'ha*, of a family in *Gaúda*, or *Bengal*.

V. The

V.

The fifth ſeems to be an elegy on the death of a king named *Vigraha*, who is repreſented as only ſlumbering. The laſt hemiſtich is hardly legible, and very obſcure; but the ſenſe of both ſtanzas appears to be this.

O'M.

1. An offence to the eyes of (thy) enemy's conſort (thou) by-whom-fortune-was-given-to-every ſuppliant, thy fame, joined to extenſive dominion, ſhines, as we deſire, before us: the heart of (thy) foes was vacant, even as a path in a deſert, where men are hindered from paſſing, O fortunate *Vigraha Râjadéva*, in the jubilee occaſioned by thy march.

2. May thy abode, O *Vigraha*, ſovereign of the world, be fixed, as in reaſon, (it ought,) in the boſoms, embelliſhed with Love's allurements, and full of dignity, of the women with beautiful eyebrows, who were married to thy enemies! Whether thou art *Indra*, or *Viſhnu*, or *Siva*, there is even no deciding: thy foes (are) fallen, like deſcending water. Oh! why doſt thou through deluſion continue ſleeping?

XXII.

A

CONVERSATION

WITH

ABRAM, AN ABYSSINIAN,

CONCERNING THE

City of GWENDER *and the* SOURCES *of the* NILE.

By the PRESIDENT.

HAVING been informed that a native of *Abyſſinia* was in *Calcutta*, who ſpoke *Arabick* with tolerable fluency, I ſent for and examined him attentively on ſeveral ſubjects with which he ſeemed likely to be acquainted. His anſwers were ſo ſimple and preciſe, and his whole demeanor ſo remote from any ſuſpicion of falſehood, that I made a minute of his examination, which may not perhaps be unacceptable to the Society. *Gwender*, which *Bernier* had long ago pronounced a *capital city*, though *Ludolf* aſſerted it to be only a *military ſtation*, and conjectured, that in a few years it would wholly diſappear, is certainly, according to *Abram*, the *Metropolis* of *Abyſſinia*. He ſays, that it is nearly as large and as populous as *Miſr*, or *Káhera*, which he ſaw on his pilgrimage to *Jeruſalem*; that it lies between two broad and deep rivers, named *Caha* and *Ancrib*, both which flow into the *Nile* at the diſtance of about fifteen days journey; that all the walls of the houſes are of a red ſtone, and the roofs of thatch; that the ſtreets are like thoſe of *Calcutta*, but that the ways by which the king paſſes are very ſpacious; that the palace, which has a plaſtered roof, reſembles a fortreſs, and ſtands in the heart of the city; that the markets of the town abound in pulſe, and have

alſo

alſo wheat and barley, but no rice; that ſheep and goats are in plenty among them, and that the inhabitants are extremely fond of milk, cheeſe, and whey; but that *the country people* and *ſoldiery* make no ſcruple of drinking the blood, and eating the raw fleſh, of an ox, which they cut without caring whether he is dead or alive; that this ſavage diet is, however, by no means general. Almonds, he ſays, and dates, are not found in his country; but grapes and peaches ripen there; and in ſome of the diſtant provinces, eſpecially at *Cárudár*, wine is made in abundance; but a kind of mead is the common inebriating liquor of the *Abyſſinians*. The late King was *Tilca Mahút*, (the firſt of which words means *root* or *origin*;) and the preſent his brother, *Tilca Jerjis*. He repreſents the royal forces at *Gwender* as conſiderable; and aſſerts, perhaps at random, that near forty thouſand horſe are on that ſtation. The troops are armed, he ſays, with muſkets, lances, bows and arrows, cimeters, and hangers. The council of ſtate conſiſts, by his account, of about forty Miniſters, to whom almoſt all the executive part of government is committed. He was once in the ſervice of a *Vazir*, in whoſe train he went to ſee the fountains of the *Nile* or *Abey*, uſually called *Alawy*, about eight days journey from *Gwender*. He ſaw three ſprings, one of which riſes from the ground with a great noiſe, that may be heard at the diſtance of five or ſix miles. I ſhowed him the deſcription of the *Nile* by *Gregory* of *Amhara*, which *Ludolf* has printed in *Ethiopick*. He both read and explained it with great facility; whilſt I compared his explanation with the *Latin* verſion, and found it perfectly exact. He aſſerted of his own accord, that the deſcription was conformable to all that he had ſeen and heard in *Ethiopia*; and for that reaſon I annex it. When I interrogated him on the languages and learning of his country, he anſwered, that ſix or ſeven tongues at leaſt were ſpoken there; that the moſt elegant idiom, which the King uſed, was the *Ambarick*; that the *Ethiopick* contained, as it is well known, many *Arabick* words; that, beſides

their

their ſacred books, as the Prophecy of *Enoch*, and others, they had Hiſtories of *Abyſſinia*, and various literary compoſitions; that their language was taught in ſchools and colleges, of which there were ſeveral in the Metropolis. He ſaid, that no *Abyſſinian* doubted the exiſtence of the royal priſon called *Wahinin*, ſituated on a very lofty mountain, in which the ſons and daughters of their Kings were confined; but that, from the nature of the thing, a particular deſcription of it could not be obtained. "All theſe matters (ſaid he) are explained, I ſuppoſe, in the writings of *Yákúb*, whom I ſaw thirteen years ago in *Gwender*. He was a phyſician, and had attended the King's brother, who was alſo a *Vazir*, in his laſt illneſs. The prince died; yet the King loved *Yákúb*; and, indeed, all the court and people loved him. The King received him in his palace as a gueſt, ſupplied him with every thing that he could want; and, when he went to ſee the ſources of the *Nile*, and other curioſities, (for he was extremely curious,) he received every poſſible aſſiſtance and accommodation from the royal favour. He underſtood the languages, and wrote and collected many books, which he carried with him." It was impoſſible for me to doubt (eſpecially when he deſcribed the perſon of *Yákúb*) that he meant *James Bruce*, Eſq. who travelled in the dreſs of a *Syrian* phyſician, and probably aſſumed with judgment a name well known in *Abyſſinia*. He is ſtill revered on *Mount Sinai* for his ſagacity in diſcovering a ſpring, of which the Monaſtery was in great need. He was known at *Jedda* by *Mír Mohammed Huſſain*, one of the moſt intelligent *Mahomedans* in *India*; and I have ſeen him mentioned with great regard in a letter from an *Arabian* merchant at *Mokhá*. It is probable that he entered *Abyſſinia* by the way of *Muſuwwa*, a town in the poſſeſſion of the *Muſelmans*, and returned through the deſert mentioned by *Gregory* in his deſcription of the *Nile*. We may hope that Mr. *Bruce* will publiſh an account of his intereſting travels, with a verſion of the Book of *Enoch*, which no man but himſelf

ſelf can give us with fidelity. By the help of *Abyſſinian* records, great light may be thrown on the Hiſtory of *Yemen* before the time of *Muhammed*; ſince it is generally known that four *Ethiop* kings ſucceſſively reigned in that country, having been invited over by the natives to oppoſe the tyrant *Dhú Nawás*; and that they were, in their turn, expelled by the arms of the *Himyarick* Princes, with the aid of *Anuſhirvan*, king of *Perſia*, who did not fail, as it uſually happens, to keep in ſubjection the people whom he had conſented to relieve. If the annals of this period can be reſtored, it muſt be through the hiſtories of *Abyſſinia*, which will alſo correct the many errors of the beſt *Aſiatick* writers on the *Nile*, and the countries which it fertilizes.

ON

ON THE COURSE OF THE NILE.

THE *Nile*, which the *Abyſſinians* know by the names of *Abey*, and *Alawy*, or the *Giant*, guſhes from ſeveral ſprings at a place called *Sucút*, lying on the higheſt part of *Dengalá*, near *Gojjám*, to the weſt of *Bajemdir*, and the lake of *Dara* or *Wed*, into which it runs with ſo ſtrong and rapid a current, that it mixes not with the other waters, but rides or ſwims, as it were, above them.

All the rains that fall in *Abyſſinia*, and deſcend in torrents from the hills, all ſtreams and rivers, ſmall and great, except the *Hanázó*, which waſhes the plains of *Hengót*, and the *Hawáſh*, which flows by *Dewár* and *Fetgár*, are collected by this king of waters, and, like vaſſals, attend his march. Thus enforced, he ruſhes, like a hero exulting in his ſtrength, and haſtens to fertilize the land of *Egypt*, on which no rain falls. We muſt except alſo thoſe *Ethiopian* rivers which riſe in countries bordering on the ocean, as the kingdoms of *Cambát*, *Gurájy*, *Wáſy*, *Náriyah*, *Gáſy*, *Wej*, and *Zinjiro*, whoſe waters are diſembogued into the ſea.

When the *Alawy* has paſſed the Lake, it proceeds between *Gojjám* and *Bajemdir*, and leaving them to the weſt and eaſt, purſues a direct courſe towards *Amhárá*, the ſkirts of which it bathes, and then turns again to the weſt, touching the borders of *Walaka*; whence it rolls along *Múgár* and *Shawai*, and paſſing *Bazáwá* and *Gongá*, deſcends into the low lands of *Shankila*, the country of the Blacks: thus it forms a ſort of ſpiral round the province of *Gojjám*, which it keeps for the moſt part on its right.

Here:

Here it bends a little to the eaſt, from which quarter, before it reaches the diſtricts of *Sennár*, it receives two large rivers; one called *Tacazzy*, which runs from *Tegri*; and the other, *Gwangue*, which comes from *Dembeiá*.

After it has viſited *Sennár*, it waſhes the land of *Dongolá*, and proceeds thence to *Nubia*, where it again turns eaſtward, and reaches a country named *Abrim*, where no veſſels can be navigated, by reaſon of the rocks and crags which obſtruct the channel. The inhabitants of *Sennár* and *Nubia* may conſtantly drink of its water, which lies to the eaſt of them like a ſtrong bulwark; but the merchants of *Abyſſinia*, who travel to *Egypt*, leave the *Nile* on their right, as ſoon as they have paſſed *Nubia*, and are obliged to traverſe a deſert of ſand and gravel, in which for fifteen days they find neither wood nor water. They meet it again in the country of *Reíf*, or *Upper Egypt*, where they find boats on the river, or ride on its banks, refreſhing themſelves with its ſalutary ſtreams.

It is aſſerted by ſome travellers, that, when the *Alawy* has paſſed *Sennár* and *Dongolá*, but before it enters *Nubia*, it divides itſelf; that the great body of water flows entire into *Egypt*, where the ſmaller branch (the *Niger*) runs weſtward, not ſo as to reach *Barbary*, but towards the country of *Alwáh*, whence it ruſhes into the Great Sea. The truth of this fact I have verified, partly by my own obſervations, and partly by my inquiries among intelligent men; whoſe anſwers ſeemed the more credible, becauſe, if ſo prodigious a maſs of water were to roll over *Egypt* with all its wintry increaſe, not the land only, but the houſes and towns, of the *Egyptians* muſt be overflowed.

XXIII.

XXIII.

ON THE

TRIAL BY ORDEAL

AMONG THE

HINDUS.

By A'LI IBRA'HI'M KHA'N,

CHIEF MAGISTRATE AT BANARES.

Communicated by WARREN HASTINGS, Esq.

THE modes of trying offenders by an appeal to the Deity, which are deſcribed at large in the *Mitácſherá*, or Comment on the *Dherma Sáſtra*, in the *Chapter of Oaths*, and other ancient books of *Hindú* Law, are here ſufficiently explained, according to the interpretation of learned *Pandits*, by the well-wiſher to mankind, *A'li Ibráhím Khán.*

The word *Divya*, in *Sanſcrit*, ſignifies the ſame with *Paríchhà*, or *Parikhyà*, in *Bháſhà*, *Kaſam* in *Arabick*, and *Saùcand* in *Perſian*; that is, *an oath*; or the form of invoking the Supreme Being to atteſt the truth of an allegation; but it is generally underſtood to mean the trial by *ordeal*, or the form of appealing to the *immediate* interpoſition of the Divine Power.

Now this trial may be conducted in *nine* ways. Firſt, by the *balance*; ſecondly, by *fire*; thirdly, by *water*; fourthly, by *poiſon*; fifthly, by the *Cóſha*, or water in which an idol has been waſhed; ſixthly, by *rice*; ſeventhly, by *boiling oil*; eighthly, by *red-hot iron*; ninthly, by *images*.

I. Ordeal

I. Ordeal by the *balance* is thus performed. The beam having been previouſly adjuſted, the cord fixed, and both ſcales made perfectly even, the perſon accuſed and a *Pandit* faſt a whole day; then, after the accuſed has been bathed in ſacred water, the *hóma*, or *oblation*, preſented to *fire*, and the deities worſhipped, he is carefully weighed; and, when he is taken out of the ſcale, the *Pandits* proſtrate themſelves before it, pronounce a certain *mentra*, or *incantation*, agreeably to the *Sáſtras*, and, having written the ſubſtance of the accuſation on a piece of paper, bind it on his head. Six minutes after they place him again in the ſcale; and if he weigh more than before, he is held guilty; if leſs, innocent: if exactly the ſame, he muſt be weighed a third time; when, as it is written in the *Mitácſherá*, there will certainly be a difference in his weight. Should the balance, though well fixed, break down, this would be conſidered as a proof of his guilt.

II. For the *fire-ordeal* an excavation, nine hands long, two ſpans broad, and one ſpan deep, is made in the ground, and filled with a fire of *pippal* wood: into this the perſon accuſed muſt walk barefooted; and if his foot be unhurt, they hold him blameleſs; if burned, guilty.

III. *Water-ordeal* is performed by cauſing the perſon accuſed to ſtand in a ſufficient depth of water, either flowing or ſtagnant, to reach his navel; but care ſhould be taken that no ravenous animal be in it, and that it be not moved by much air. A *Bráhman* is then directed to go into the water, holding a ſtaff in his hand; and a ſoldier ſhoots three arrows on dry ground from a bow of cane. A man is next diſpatched to bring the arrow which has been ſhot fartheſt; and, after he has taken it up, another is ordered to run from the edge of the water; at which inſtant the perſon accuſed is told to graſp the foot or the ſtaff of the *Bráhman*, who ſtands near him in the water, and immediately to dive into it.

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He muſt remain under water till the two men who went to fetch the arrows are returned; for if he raiſe his head or body above the ſurface before the arrows are brought back, his guilt is conſidered as fully proved. In the village near *Banáres*, it is the practice for the perſon, who is to be tried by this kind of *ordeal*, to ſtand in water up to his navel, and then, holding the foot of a *Bráhman*, to dive under it as long as a man can walk fifty paces very gently. If before the man has walked thus far the accuſed riſe above the water, he is condemned; if not, acquitted.

IV. There are two ſorts of trial by *poiſon*. Firſt, the *Pandits* having performed their *hóma*, and the perſon accuſed his ablution, two *retti's* and a half, or ſeven barley-corns, of *viſhanága*, a poiſonous root, or of *ſanc'hyá*, (that is, white arſenick,) are mixed in eight *máſha's*, or ſixty-four *retti's*, of clarified *butter*, which the accuſed muſt eat from the hand of a *Bráhman*. If the poiſon produce no viſible effect, he is abſolved; otherwiſe, condemned. Secondly, the hooded ſnake, called *nága*, is thrown into a deep earthen pot, into which is dropped a ring, a ſeal, or a coin. This the perſon accuſed is ordered to take out with his hand; and if the ſerpent bite him, he is pronounced guilty; if not, innocent.

V. Trial by the *Cóſha* is as follows: The accuſed is made to drink three draughts of the water in which the images of the *Sun*, of *Dévì*, and other Deities, have been waſhed for that purpoſe; and if within fourteen days he has any ſickneſs or indiſpoſition, his crime is conſidered as proved.

VI. When ſeveral perſons are ſuſpected of theft, ſome dry rice is weighed with the ſacred ſtone called *ſálgrâm*; or certain *ſlócas* are read over it; after which the ſuſpected perſons are ſeverally ordered to chew a quantity

quantity of it: as ſoon as they have chewed it, they are to throw it on ſome leaves of *pippal*, or, if none be at hand, on ſome *b'hûrja patra*, or bark of a tree from *Népál* or *Caſhmír*. The man from whoſe mouth the rice comes dry, or ſtained with blood, is holden guilty; the reſt are acquitted.

VII. The ordeal by *hot oil* is very ſimple: when it is heated ſufficiently, the accuſed thruſts his hand into it; and if he be not burned, is held innocent.

VIII. In the ſame manner they make an *iron ball*, or the *head of a lance*, red hot, and place it in the hands of the perſon accuſed; who, if it burn him not, is judged guiltleſs.

IX. To perform the ordeal by *dharmárch*, which is the name of the *ſlóca* appropriated to this mode of trial, either an image, named *Dharma*, or the Genius of Juſtice, is made of ſilver, and another, called *Adharma*, of clay or iron, both of which are thrown into a large earthen jar; and the accuſed, having thruſt his hand into it, is acquitted if he bring out the ſilver image, but condemned if he draw forth the iron. Or the figure of a deity is painted on white cloth, and another on black; the firſt of which they name *Dharma*, and the ſecond, *Adharma*. Theſe are ſeverally rolled up in cow-dung, and thrown into a large jar, without having ever been ſhown to the accuſed; who muſt put his hand into the jar, and is acquitted or convicted, as he draws out the figure on white or on black cloth.

It is written in the comment on the *Dherma Sáſtrá*, that each of the four principal caſts has a ſort of ordeal appropriated

appropriated to it; that a *Bráhman* muſt be tried by the *balance*, a *Cſhatriya* by *fire*, a *Vaiſya* by *water*, and a *Súdra* by *poiſon*: but ſome have decided that any ordeal, except that by poiſon, may be performed by a *Bráhman*, and that a man of any caſt may be tried by the *balance*. It has been determined, that a woman may have any trial, except thoſe by poiſon and by water.

Certain months and days alſo are limited in the *Mitácſherá* for the different ſpecies of ordeal; as *Agrahan*, *Pauſh*, *Mágh*, *P'hálgun*, *Sráwan*, and *B'hádr*, for that by *fire*; *A'ſwin*, *Cártic*, *Jaiſht*, and *A'ſhádh*, for that by *water*; *Pauſh*, *Mágh*, and *P'hálgun*, for that by *poiſon*; and regularly there ſhould be no *water-ordeal* on the *Aſtemi*, or *eighth*; the *Cheturdaſi*, or *fourteenth* day of the new or full moon, in the intercalary month, in the month of *B'hádar*; on *Saṇaiſcher*, or *Saturday*; and on *Mangal*, or *Tueſday*: but, whenever the magiſtrate decides that there ſhall be an ordeal, the regular appointment of months and days needs not be regarded.

The *Mitácſherá* contains alſo the following diſtinctions. In caſes of theft or fraud to the amount of a *hundred* gold mohrs, the trial by *poiſon* is proper; if *eighty* mohrs be ſtolen, the ſuſpected perſon may be tried by *fire*; if *forty*, by the *balance*; if from *thirty* to *ten*, by the *image-water*; if *two* only, by *rice*.

An inſpired legiſlator, named *Cátyáyana*, was of opinion, that though a theft or fraud could be proved by witneſſes, the party accuſed might be tried by ordeal. He ſays too, that, where a thouſand *panas* are ſtolen, or fraudulently with-held, the proper trial is by *poiſon*; where *ſeven hundred and fifty*, by *fire*; where *ſix hundred and ſixty-ſix*, and a fraction, by water; where *five hundred*,

by the *balance;* where *four hundred*, by *hot oil;* where *three hundred*, by *rice;* where an *hundred and fifty*, by the *Cóſha;* and where *one hundred*, by the *dharmárch*, or images of ſilver and iron.

The mode of conducting the ordeal by *red-hot balls*, or *heads of ſpears*, is thus particularly deſcribed in the Commentary on *Yágyawelcya.*

At daybreak the place where the ceremony is to be performed, is cleared and waſhed in the cuſtomary form; and at ſun-riſe the *Pandits*, having paid their adoration to *Ganéſa*, the God of Wiſdom, draw nine circles on the ground with cow-dung, at intervals of ſixteen fingers; each circle containing ſixteen fingers of each, but the ninth either ſmaller or larger than the reſt. Then they worſhip the deities in the mode preſcribed by the *Sáſtra*, preſent oblations to the fire, and, having a ſecond time worſhipped the Gods, read the appointed *mentra's.* The perſon to be tried then performs an ablution, puts on moiſt clothes, and, turning his face to the eaſt, ſtands in the *firſt* ring, with both his hands fixed in his girdle. After this the preſiding magiſtrate and *Pandits* order him to rub ſome rice in the huſk between his hands, which they carefully inſpect; and, if the ſcar of a former wound, a mole, or other mark, appear on either of them, they ſtain it with a dye, that, after trial, it may be diſtinguiſhed from any new mark. They next order him to hold both his hands open and cloſe together; and, having put into them ſeven leaves of the trembling tree, or *pippál*, ſeven of the *ſami*, or *jend*, ſeven blades of *darbha* graſs, a little barley moiſtened with curds, and a few flowers, they faſten the leaves on his hand with ſeven threads of raw cotton. The *Pandits* then read the *ſlócas* which are appointed for the occaſion;

occaſion; and, having written a ſtate of the caſe, and the point in iſſue, on a Palmyra-leaf, together with the *mentra* preſcribed in the *Véda*, they tie the leaf on the head of the accuſed. All being prepared, they heat an iron ball, or the head of a lance, weighing two *sêr* and a half, or five *pounds*, and throw it into water; they heat it again, and again cool it in the ſame manner. The third time they keep it in the fire till it is red hot; then they make the perſon accuſed ſtand in the firſt circle; and, having taken the iron from the fire, and read the uſual incantation over it, the *Pandits* place it with tongs in his hands. He muſt ſtep gradually from circle to circle, his feet being conſtantly within one of them, and when he has reached the *eighth*, he muſt throw the iron into the *ninth*, ſo as to burn ſome graſs, which muſt be left in it for that purpoſe. This being performed, the magiſtrate and *Pandits* again command him to rub ſome rice in the huſk between both his hands, which they afterwards examine; and if any mark of burning appear on either of them, he is convicted; if not, his innocence is conſidered as proved. If his hand ſhake through fear, and by his trembling any other part of his body is burned, his veracity remains unimpeached; but, if he let the iron drop before he reach the *eighth* circle, and doubt ariſe in the minds of the ſpectators whether it had burned him, he muſt repeat the whole ceremony from the beginning.

In the year of the *Meſſiah* 1783, a man was tried by the *hot ball* at *Benáres*, in the preſence of me *Alí Ibráhim Khán*, on the following occaſion. A man had accuſed one *Sancar* of larceny, who pleaded that he was not guilty; and as the theft could not be proved by legal evidence, the trial by *fire-ordeal* was tendered to the appellee, and accepted by him. This well-wiſher to mankind adviſed the learned magiſtrates and *Pandits*, to prevent the deciſion of the queſtion by a mode not

conformable to the practice of the Company's Government, and recommended an oath by the water of the *Ganges*, and the leaves of *tulaſi*, in a little veſſel of braſs, or by the book *Herivanſa*, or the ſtone *Sálgrám*, or by the hallowed ponds or baſons; all which oaths are uſed at *Benáres*. When the parties obſtinately refuſed to try the iſſue by any one of the modes recommended, and inſiſted on a trial by the hot ball, the magiſtrates and *Pandits* of the court were ordered to gratify their wiſhes; and, ſetting aſide thoſe forms of trial in which there could be only a diſtant fear of death, or loſs of property, as the juſt puniſhment of perjury by the ſure, yet ſlow, judgment of heaven, to perform the ceremony of ordeal agreeably to the *Dherma Sáſtra*: but it was not till after mature deliberation for four months, that a regular mandate iſſued for trial by the red-hot ball; and this was at length granted for four reaſons: firſt, becauſe there was no other way of condemning or abſolving the perſon accuſed; ſecondly, becauſe both parties were *Hindus*, and this mode of trial was ſpecially appointed in the *Dherma Sáſtra* by the ancient lawgivers; thirdly, becauſe this ordeal is practiſed in the dominions of the *Hindu Rájás*; and fourthly, becauſe it might be uſeful to inquire how it was poſſible for the heat of fire to be reſiſted, and for the hand that held it to avoid being burned. An order was accordingly ſent to the *Pandits* of the court, and of *Benáres*, to this effect: "Since the parties accuſing and accuſed are both *Hin-*
"*dus*, and will not conſent to any trial but that by the
"hot ball, let the ordeal deſired be duly performed in
"the manner preſcribed by the *Mitácſherá*, or Com-
"mentary on *Yágyawalcya*."

When preparations were made for the trial, this well-wiſher to mankind, attended by all the learned profeſſors, by the officers of the court, the *Sipáhis* of Captain *Hogan's* battalion, and many inhabitants of *Benáres*, went

went to the place prepared, and endeavoured to diſſuade the appellor from requiring the accuſed to be tried by fire, adding "if his hand be not burned, you ſhall cer-" tainly be impriſoned." The accuſer, not deterred by this menace, perſiſted in demanding the trial. The ceremony, therefore, was thus conducted in the preſence of me, *Ali Ibráhim Khán.*

The *Pandits* of the court and the city, having worſhipped the God of *Knowledge*, and preſented their oblation of clarified butter to the fire, formed nine circles of cow-dung on the ground; and, having bathed the appellee in the *Ganges*, brought him with his clothes wet; when, to remove all ſuſpicion of deceit, they waſhed his hands with pure water: then, having written a ſtate of the caſe, and the words of the *mentra*, on a Palmyra-leaf, they tied it on his head; and put into his hands, which they opened and joined together, ſeven leaves of *pippal*, ſeven of *jend*, ſeven blades of *darbha* graſs, a few flowers, and ſome barley moiſtened with curds, which they faſtened with ſeven threads of raw white cotton. After this they made the iron ball red hot, and, taking it up with tongs, placed it in his hands. He walked with it, ſtep by ſtep, the ſpace of three *gaz* and a half, through each of the *ſeven* intermediate rings, and threw the ball into the *ninth*, where it burnt the graſs that had been left in it. He next, to prove his veracity, rubbed ſome rice in the huſk between his hands; which were afterwards examined, and were ſo far from being burned, that not even a bliſter was raiſed on either of them. Since it is the nature of fire to burn, the officers of the court, and people of *Benáres*, near five hundred of whom attended the ceremony, were aſtoniſhed at the event; and this well-wiſher to mankind was perfectly amazed. It occurred to his weak apprehenſion, that probably the freſh leaves, and other things, which, as it has been mentioned, were placed on the hands of the accuſed, had

had prevented their being burned; beſides that the time was but ſhort between his taking the ball and throwing it down; yet it is poſitively declared in the *Dherma Sáſtra*, and in the written opinions of the moſt reſpectable *Pandits*, that the hand of a man who ſpeaks truth cannot be burned; and *Àli Ibráhim Khán* certainly ſaw with his own eyes, as many others alſo ſaw with theirs, that the hands of the appellee in this cauſe were unhurt by the fire. He was conſequently diſcharged. But, that men might in future be deterred from demanding the trial by ordeal, the appellor was committed for a week. After all, if ſuch a trial could be ſeen once or twice by ſeveral intelligent men, acquainted with natural philoſophy, they might be able to aſſign the true reaſon why a man's hand may be burned in ſome caſes, and not in others.

Ordeal by the veſſel of *hot oil*, according to the Comment on the *Dherma Sáſtra*, is thus performed. The ground appointed for the trial is cleared, and rubbed with cow-dung; and the next day, at ſun-riſe, the *Pandit* worſhips *Ganéſa*, preſents his oblations, and pays adoration to other deities, conformably to the *Sáſtra*; then, having read the incantation preſcribed, he places a round pan of gold, ſilver, copper, iron, or clay, with a diameter of ſixteen fingers, and four fingers deep; and throws into it one *sér*, or eighty *ſicca* weight, of clarified butter, or oil of *ſeſamum*. After this a ring of gold, or ſilver, or iron, is cleaned, and waſhed with water, and caſt into the oil, which they proceed to heat; and when it is very hot, put into it a freſh leaf of *pippala*, or of *bilwa*: when the leaf is burned, the oil is known to be ſufficiently hot. Then, having pronounced a *mentra* over the oil, they order the party accuſed to take the ring out of the pan; and if he take it out without being burned, or without a bliſter on his hand, his innocence is conſidered as proved; if not, his guilt.

A *Bráhman*,

A *Brahman*, named *Riſhíſwara Bhatta*, accuſed one *Rámdayál*, a linen painter, of having ſtolen his goods. *Rámdayál* pleaded not guilty; and, after much altercation, conſented to be tried, as it had been propoſed, by the veſſel of oil. This well-wiſher to mankind adviſed the *Pandits* of the court to prevent, if poſſible, that mode of trial; but ſince the parties inſiſted on it, an ordeal by hot oil, according to the *Sáſtra*, was awarded for the ſame reaſons which prevailed in regard to the trial by the ball. The *Pandits*, who aſſiſted at the ceremony, were *Bhíſhma Bhatta*, *Nánápát'hac*, *Maniráma Pát'haca*, *Meniráma Bhatta*, *Siva*, *Anantráma Bhatta*, *Cripáráma*, *Viſhnuheri*, *Criſhnachandra*, *Ráméndra*, *Góvindaráma*, *Heritriſhná Bhatta*, *Cálidáſa*: The three laſt were *Pandits* of the court. When *Ganéſa* had been worſhipped, and the *hóma* preſented, according to the *Sáſtra*, they ſent for this well-wiſher to mankind; who, attended by the two *Dáróghas* of the *Dévání* and *Faujdári* courts, the *Cotwál* of the town, the other officers of the court, and moſt of the inhabitants of *Benáres*, went to the place of trial; where he laboured to diſſuade *Rámdayál*, and his father, from ſubmitting to the ordeal; and appriſed them, that if the hand of the accuſed ſhould be burned, he would be compelled to pay the value of the goods ſtolen, and his character would be diſgraced in every company. *Rámdayál* would not deſiſt: he thruſt his hand into the veſſel, and was burned. The opinion of the *Pandits* was then taken; and they were unanimous, that, by the burning of his hand, his guilt was eſtabliſhed, and he bound to pay *Riſhíſwara Bhatta* the price of what he had ſtolen; but if the ſum exceeded five hundred *aſhraſi's*, his hand muſt be cut off by an expreſs law in the *Sáſtra*; and a mulct alſo muſt be impoſed on him according to his circumſtances.

The chief magiſtrate, therefore, cauſed *Rámdayál* to pay *Riſhíſwara* ſeven hundred rupees in return for

the goods which had been ſtolen; but, as amercements in ſuch caſes are not uſual in the courts of judicature at *Benáres*, the mulct was remitted, and the priſoner diſcharged.

The record of this conviction was tranſmitted to *Calcutta* in the year of the *Meſſiah* 1783; and in the month of *April*, 1784, the Governor-General, *Imádu'ddaúlah Jeládet Jang Beháder*, having ſeen the preceding account of trials by ordeal, put many queſtions concerning the meaning of *Sanſcrit* words, and the caſes here reported; to which he received reſpectful anſwers. He firſt deſired to know the preciſe meaning of *hóma*, and was informed that it meant the oblations made to pleaſe the deities, and compriſed a variety of things. Thus in the *agni hóma*, they throw into the *fire* ſeveral ſorts of wood and graſs, as *palás* wood, *c'hadira* wood, *racta chandan*, or red ſandal, *pippal-wood ſami*, and *cuſha* graſs, together with ſome ſorts of grain, fruit, and other ingredients, as *black ſeſamum*, *barley*, *rice*, *ſugar-cane*, *clarified butter*, *almonds*, *dates*, and *gúgal*, or *bdellium*. To his next queſtion, "how many ſpecies of *hóma* there "were," it was anſwered, that different ſpecies were adopted on different occaſions: but that, in the ordeals by hot iron, and hot oil, the ſame ſort of oblation was uſed. When he deſired to know the meaning of the word *mentra*, he was reſpectfully told, that in the language of the *Pandits* there were three ſuch words, *mentra*, *yantra*, and *tantra*; that the *firſt* meant a paſſage from one of the *Védas*, in which the names of certain deities occurred; the ſecond, a ſcheme of figures, which they write with a belief that their wiſhes will be accompliſhed by it; and the third, a medical preparation, by the uſe of which all injuries may be avoided; for they are ſaid to rub it on their hands, and afterwards to touch red-hot iron without being burned. He then aſked how much barley, moiſtened with curds, was put into the hands of the accuſed perſon; and the anſwer was, *nine grains*.

His

His other queſtions were thus anſwered: "That the leaves of *pippala* were ſpread about in the hands of the accuſed, not heaped one above another; that the man, who performed the ordeal, was not much agitated, but ſeemed in full poſſeſſion of his faculties; that the perſon tried by hot oil was at firſt afraid, but perſiſted, after he was burned, in denying the theft; nevertheleſs, as he previouſly had entered into a written agreement, that, if his hand ſhould be hurt, he would pay the value of the goods, the magiſtrate for that reaſon thought himſelf juſtified in compelling payment; that, when the before mentioned ingredients of the *hóma* were thrown into the fire, the *Pandits*, ſitting round the *hearth*, ſung the *Slócas* preſcribed in the *Sáſtra*. That the form of the hearth is eſtabliſhed in the *Véda* and in the *Dherma Sáſtra*; and this fire-place is alſo called *Védi*; that, for the ſmaller oblations, they raiſe a little ground for the *hearth*, and kindle fire on it; for the higher oblations, they ſink the ground, to receive the fire where they perform the *hóma*, and this ſacred hearth they call *cunda*." The Governor then aſked, why the trials by fire, by the hot ball, and the veſſel of oil, if there be no eſſential difference between them, are not all called fire-ordeals; and it was humbly anſwered, that according to ſome *Pandits*, they were all three different; whilſt others inſiſted, that the trial by fire was diſtinct from that by the veſſel, though the trial by the hot ball, and the head of a lance, was the ſame; but that, in the apprehenſion of his reſpectful ſervant, they were all *ordeals* by *fire*.

THE

THE

INDIAN LAW OF ORDEAL,

Verbally tranſlated from Yágyawalcya.

1. THE balance, fire, water, poiſon, the idol—Theſe are the ordeals uſed below for the proof of innocence, when the accuſations are heavy, and when the accuſer offers to hazard a mulct, (if he ſhould fail.)

2. Or one party may be tried, if he pleaſe, by ordeal, and the other muſt then riſque an amercement. But the trial may take place even without any wager, if the crime committed be injurious to the prince.

3. The ſovereign, having ſummoned the accuſed, while his clothes are yet moiſt from bathing, at ſunriſe, before he has broken his faſt, ſhall cauſe all trials by ordeal to be conducted in the preſence of *Bráhmans*.

4. The balance is for women, children, old men, the blind, the lame, *Bráhmans*, and the ſick; for the *Súdra*, fire or water, or ſeven barley-corns of poiſon.

5. Unleſs the loſs of the accuſer amount to a thouſand pieces of ſilver, the accuſed muſt not be tried by the red-hot ball, nor by poiſon, nor by the ſcales; but, if the offence be againſt the king, or if the crime be heinous, he muſt acquit himſelf by one of thoſe trials in all caſes.

6. He

6. He who has recourſe to the balance, muſt be attended by perſons experienced in weighing, and go down into one ſcale, with an equal weight placed in the other, and a groove (with water in it) marked on the beam.

7. "Thou, O balance, art the manſion of truth; "thou waſt anciently contrived by deities: declare the "truth, therefore, O giver of ſucceſs, and clear me "from all ſuſpicion.

8. "If I am guilty, O venerable as my own mother, then ſink me down; but if innocent, raiſe me aloft." Thus ſhall he addreſs the balance.

9. If he ſink, he is convicted, or if the ſcales be broken; but if the ſtring be not broken, and he riſe aloft, he muſt be acquitted.

10. On the trial by fire, let both hands of the accuſed be rubbed with rice in the huſk, and well examined: then let ſeven leaves of the *Aſwatt'ha* (the religious fig-tree) be placed on them, and bound with ſeven threads.

11. "Thou, O fire, pervadeſt all beings; O cauſe of purity, who giveſt evidence of virtue and of ſin, declare the truth in this my hand."

12. When he has pronounced this, the prieſt ſhall place in both hands an iron ball, red hot, and weighing fifty * *pala's*.

13. Having taken it, he ſhall ſtep gradually into ſeven circles, each with a diameter of ſixteen fingers, and ſeparated from the next by the ſame ſpace.

14. If,

* A *pala* is four *carsha's*, and a *carsha*, eighty *ractica's*, or ſeeds of the *Ganja* creeper, each weighing above a grain and a quarter, or correctly, 1 gr. 5-16ths.

14. If, having caſt away the hot ball, he ſhall again have his hands rubbed with rice in the huſk, and ſhall ſhow them unburned, he will prove his innocence. Should the iron fall during the trial, or ſhould a doubt ariſe (on the regularity of the proceedings) he muſt be tried again.

15. "Preſerve me, O, *Varuna*, by declaring the truth." Thus having invoked the God of Waters, the accuſed ſhall plunge his head into the river or pool, and hold both thighs of a man, who ſhall ſtand in it up to his navel.

16. A ſwift runner ſhall then haſten to fetch an arrow ſhot at the moment of his plunging; and if, while the runner is gone, the prieſt ſhall ſee the head of the accuſed under water, he muſt be diſcharged as innocent.

17. "Thou, O poiſon, art the child of *Brahmá*, ſted-
"faſt in juſtice and in truth: clear me then from this
"heavy charge, and, if I have ſpoken truly, become
"nectar to me."

18. Saying this, he ſhall ſwallow the poiſon *Sárnga*, from the tree which grows on the mountain *Himálaya*; and if he digeſt it without any inflammation, the prince ſhall pronounce him guiltleſs.

19. Or the prieſt ſhall perform rites to the image of ſome tremendous deity, and, having bathed the idol, ſhall make the accuſed to drink three handfuls of the water that has dropped from it:

20. If, in fourteen days after, he ſuffer no dreadful calamity from the act of the deity, or of the king, he muſt indubitably be acquitted.

XXIV.

THE

SECOND ANNIVERSARY DISCOURSE,

Delivered 24th FEBRUARY, 1785

BY

THE PRESIDENT.

GENTLEMEN,

IF the Deity of the *Hindus*, by whom all their juſt requeſts are believed to be granted with ſingular indulgence, had propoſed laſt year to gratify my warmeſt wiſhes, I could have deſired nothing more ardently than the ſucceſs of your Inſtitution; becauſe I can deſire nothing in preference to the general good, which your plan ſeems calculated to promote, by bringing to light many uſeful and intereſting tracts, which, being too ſhort for ſeparate publication, might lie many years concealed, or, perhaps, irrecoverably periſh. My wiſhes are accompliſhed, without an invocation to *Cámadhénu*; and your Society, having already paſſed its infant ſtate, is advancing to maturity with every mark of a healthy and robuſt conſtitution. When I reflect, indeed, on the variety of ſubjects which have been diſcuſſed before you, concerning the hiſtory, laws, manners, arts, and antiquities, of *Aſia*, I am unable to decide whether my pleaſure or my ſurpriſe be the greater; for I will not diſſemble, that your progreſs has far exceeded my expectations; and, though we muſt ſeriouſly deplore the

loſs

loſs of thoſe excellent men who have lately departed from this capital, yet there is a proſpect ſtill of large contributions to your ſtock of *Aſiatick* learning, which, I am perſuaded, will continually increaſe. My late journey to *Benáres* has enabled me to aſſure you, that many of your members, who reſide at a diſtance, employ a part of their leiſure in preparing additions to your archives; and, unleſs I am too ſanguine, you will ſoon receive light from them on ſeveral topicks entirely new in the republick of letters.

It was principally with a deſign to open ſources of ſuch information, that I long had meditated an expedition up the *Ganges* during the ſuſpenſion of my buſineſs; but, although I had the ſatisfaction of viſiting two ancient ſeats of *Hindu* ſuperſtition and literature, yet, illneſs having detained me a conſiderable time in the way, it was not in my power to continue in them long enough to purſue my inquiries; and I left them, as *Æneas* is feigned to have left the ſhades, when his guide made him recollect *the ſwift flight of irrevocable time*, with a curioſity raiſed to the height, and a regret not eaſily to be deſcribed.

Whoever travels in *Aſia*, eſpecially if he be converſant with the literature of the countries through which he paſſes, muſt naturally remark the ſuperiority of *European* talents. The obſervation, indeed, is at leaſt as old as *Alexander*: And though we cannot agree with the ſage preceptor of that ambitious Prince, that "the "*Aſiaticks* are born to be ſlaves," yet the *Athenian* poet ſeems perfectly in the right, when he repreſents *Europe as a ſovereign Princeſs*, and *Aſia as her Handmaid*: But, if the miſtreſs be tranſcendently majeſtick, it cannot be denied that the attendant has many beau-

ties,

ties, and ſome advantages peculiar to herſelf. The ancients were accuſtomed to pronounce *panegyricks* on their own countrymen at the expence of all other nations; with a political view, perhaps, of ſtimulating them by praiſe, and exciting them to ſtill greater exertions; but ſuch arts are here unneceſſary; nor would they, indeed, become a Society, who ſeek nothing but truth unadorned by rhetorick; and, although we muſt be conſcious of our ſuperior advancement in all kinds of uſeful knowledge, yet we ought not therefore to contemn the people of *Aſia*, from whoſe reſearches into nature, works of art, and inventions of fancy, many valuable hints may be derived for our own improvement and advantage. If that, indeed, were not the principal object of your Inſtitution, little elſe could ariſe from it, but the mere gratification of curioſity; and I ſhould not receive ſo much delight from the humble ſhare which you have allowed me to take in promoting it

To form an exact parallel between the works and actions of the Weſtern and Eaſtern Worlds, would require a tract of no inconſiderable length; but we may decide, on the whole, that reaſon and taſte are the grand prerogatives of *European* minds, while the *Aſiaticks* have ſoared to loftier heights in the ſphere of imagination. The civil hiſtory of their vaſt empires, and of *India* in particular, muſt be highly intereſting to our common country; but we have a ſtill nearer intereſt in knowing all former modes of ruling *theſe ineſtimable provinces*, on the proſperity of which ſo much of our national welfare and individual benefit ſeems to depend. A minute *geographical* knowledge, not only of *Bengal* and *Bahar*, but, for evident reaſons, of *all the kingdoms bordering on them*, is cloſely connected with an account of their many revolutions: but the *natural* productions of theſe territories, eſpecially in the *vegetable* and *mineral* ſyſtems, are

are momentous objects of research to an *imperial*, but, which is a character of equal dignity, a *commercial*, people.

If *botany* may be described by metaphors drawn from the science itself, we may justly pronounce a minute acquaintance with *plants*, their *classes*, *orders*, *kinds*, and *species*, to be its *flowers*, which can only produce *fruit* by an application of that knowledge to the purposes of life, particularly to *diet*, by which diseases may be avoided; and to *medicine*, by which they may be remedied. For the improvemen of the last mentioned art, than which none surely can be more beneficial to mankind, the virtues of *minerals* also should be accurately known. So highly has medical skill been prized by the ancient *Indians*, that one of the *fourteen Retna's*, or *precious things*, which their gods are believed to have produced by churning the ocean with the mountain *Mandara*, was *a learned physician*. What their old books contain on this subject we ought certainly to discover, and that without loss of time; lest the venerable, but abstruse, language in which they are composed, should cease to be perfectly intelligible, even to the best educated natives, through a want of powerful invitation to study it. *Bernier*, who was himself of the faculty, mentions approved medical books in *Sanscrit*, and cites a few aphorisms, which appear judicious and rational; but we can expect nothing so important from the works of *Hindu* or *Muselman* physicians, as the knowledge, which experience must have given them, of *simple* medicines. I have seen an *Indian* prescription of *fifty-four*, and another of *fifty-six*, ingredients; but such compositions are always to be suspected, since the effect of one ingredient may destroy that of another; and it were better to find certain accounts of a single leaf or berry, than to be acquainted with the most elaborate compounds, unless they too have been proved by a multitude

tude of ſucceſsful experiments. The noble deobſtruent oil extracted from the *eranda* nut, the whole family of *Balſams*, the incomparable ſtomachick root from *Columbo*, the fine aſtringent ridiculouſly called *Japan* earth, but in truth produced by the decoction of an *Indian* plant, have long been uſed in *Aſia*; and who can foretel what glorious diſcoveries of other oils, roots, and ſalutary juices, may be made by your Society? If it be doubtful whether the *Peruvian* bark be *always* efficacious in this country, its place may, perhaps, be ſupplied by ſome indigenous vegetable equally antiſeptick, and more congenial to the climate. Whether any treatiſes on *Agriculture* have been written by experienced natives of theſe provinces, I am not yet informed; but ſince the court of *Spain* expect to find uſeful remarks in an *Arabick* tract preſerved in the *Eſcurial*, on *the cultivation of land in that kingdom*, we ſhould inquire for ſimilar compoſitions, and examine the contents of ſuch as we can procure.

The ſublime ſcience of Chemiſtry, which I was on the point of calling *divine*, muſt be added as a key to the richeſt treaſuries of nature; and it is impoſſible to foreſee how greatly it may improve our *manufactures*, eſpecially if it can fix thoſe brilliant *dyes*, which want nothing of perfect beauty, but a longer continuance of their ſplendor; or how far it may lead to new methods of *fluxing and compounding metals*, which the *Indians*, as well as the *Chineſe*, are thought to have practiſed in higher perfection than ourſelves.

In thoſe elegant arts which are called *fine* and *liberal*, though of leſs general utility than the labours of the mechanick, it is really wonderful how much a ſingle nation has excelled the whole world: I mean the ancient *Greeks*; whoſe *ſculpture*, of which we have exquiſite re-

mains, both on gems and on marble, no modern tool can equal; whoſe *architecture* we can only imitate at a ſervile diſtance, but are unable to make one addition to it, without deſtroying its graceful ſimplicity; whoſe *poetry* ſtill delights us in youth, and amuſes us at a maturer age; and of whoſe *painting* and *muſick*, we have the concurrent relations of ſo many grave authors, that it would be ſtrange incredulity to doubt their excellence. *Painting*, as an art belonging to the powers of the imagination, or what is commonly called *genius*, appears to be yet in its infancy among the people of the eaſt: but the *Hindu* ſyſtem of *muſick* has, I believe, been formed on truer principles than our own; and all the ſkill of the native compoſers is directed to the great object of their art, *the natural expreſſion of ſtrong paſſions*, to which *melody*, indeed, is often ſacrificed; though ſome of their tunes are pleaſing even to an *European* ear. Nearly the ſame may be truly aſſerted of the *Arabian* or *Perſian* ſyſtem; and, by a correct explanation of the beſt books on that ſubject, much of the old *Grecian* theory may probably be recovered.

The *poetical* works of the *Arabs* and *Perſians*, which differ ſurpriſingly in their ſtyle and form, are here pretty generally known; and though taſtes, concerning which there can be no diſputing, are divided in regard to their merit, yet we may ſafely ſay of them, what *Abulfazl* pronounces of the *Mahábhárat*, that, "although they abound with extravagant images and "deſcriptions, they are in the higheſt degree entertaining and inſtructive." Poets of the greateſt genius, *Pindar*, *Æſchylus*, *Dante*, *Petrarch*, *Shakeſpeare*, *Spenſer*, have moſt abounded in images not far from the brink of abſurdity; but if their luxuriant fancies, or thoſe of *Abulola*, *Firdauſi*, *Nizámi*, were pruned away at the hazard of their ſtrength and majeſty, we ſhould loſe many pleaſures by the amputation. If we may form a

juſt

juſt opinion of the *Sanſcrit* poetry from the ſpecimens already exhibited, (though we can only judge perfectly by conſulting the originals,) we cannot but thirſt for the whole work of *Vyáſa*, with which a member of our Society, whoſe preſence deters me from ſaying more of him, will in due time gratify the publick. The poetry of *Mathurà*, which is the *Parnaſſian* land of the *Hindus*, has a ſofter and leſs elevated ſtrain; but, ſince the inhabitants of the diſtricts near *Agra*, and principally of the *Duab*, are ſaid to ſurpaſs all other *Indians* in eloquence, and to have compoſed many agreeable tales and love-ſongs, which are ſtill extant, the *Bhâſhâ*, or *vernacular idiom* of *Vraja*, in which they are written, ſhould not be neglected. No ſpecimens of genuine *oratory* can be expected from nations, among whom the form of government precludes even the idea of *popular eloquence*; but the art of writing, in elegant and modulated periods, has been cultivated in *Aſia* from the earlieſt ages; the *Vêda's*, as well as the *Alkoran*, are written in meaſured proſe; and the compoſitions of *Iſocrates* are not more highly poliſhed than thoſe of the beſt *Arabian* and *Perſian* authors.

Of the *Hindu* and *Muſelman* architecture there are yet many noble remains in *Bahar*, and ſome in the vicinity of *Malda*; nor am I unwilling to believe, that even thoſe ruins, of which you will, I truſt, be preſented with correct delineations, may furniſh our own architects with new ideas of beauty and ſublimity.

Permit me now to add a few words on the *ſciences*, properly ſo named; in which it muſt be admitted, that the *Aſiaticks*, if compared with our Weſtern nations, are mere children. One of the moſt ſagacious men in this age, who continues, I hope, to improve and adorn it, *Samuel Johnſon*, remarked in my hearing, that, "if

" *Newton* had flouriſhed in ancient *Greece*, he would " have been worſhipped as a divinity." How zealouſly then would he be adored in *Hinduſtan*, if his incomparable writings could be read and comprehended by the *Pandits* of *Caſhmír* or *Benáres!* I have ſeen a mathematical book in *Sanſcrit* of the higheſt antiquity; but ſoon perceived, from the diagrams, that it contained only ſimple elements. There may, indeed, have been in the favourable atmoſphere of *Aſia*, ſome diligent obſervers of the celeſtial bodies; and ſuch obſervations as are recorded ſhould indiſputably be made publick; but let us not expect any new *methods*, or the analyſis of new *curves*, from the geometricians of *Iran*, *Turkiſtan*, or *India*. Could the works of *Archimedes*, the *Newton* of *Sicily*, be reſtored to their genuine purity by the help of *Arabick* verſions, we might then have reaſon to triumph on the ſucceſs of our ſcientifical inquiries; or could the ſucceſſive improvements and various rules of *algebra*, be traced through *Arabian* channels, to which *Cardan* boaſted that he had acceſs, the modern hiſtory of *Mathematicks* would receive conſiderable illuſtration.

The juriſprudence of the *Hindus* and *Muſelmans* will produce more immediate advantage; and if ſome ſtandard *law-tracts* were accurately tranſlated from the *Sanſcrit* and *Arabick*, we might hope in time to ſee ſo complete a Digeſt of *Indian* Laws, that all diſputes among the natives might be decided without *uncertainty*, which is, in truth, a diſgrace, though ſatirically called a *glory*, to the forenſick ſcience.

All theſe objects of inquiry muſt appear to you, Gentlemen, in ſo ſtrong a light, that bare intimations of them will be ſufficient: nor is it neceſſary to make uſe of *emulation* as an incentive to an ardent purſuit of them: yet I cannot forbear expreſſing a wiſh that the activity

activity of the *French* in the same pursuits may not be superior to ours; and that the researches of *M. Sonnerat*, whom the court of *Versailles* employed for seven years in these climates, merely to collect such materials as we are seeking, may kindle, instead of abating, our own curiosity and zeal. If you assent, as I flatter myself you do, to these opinions, you will also concur in promoting the object of them; and a few ideas having presented themselves to my mind, I presume to lay them before you, with an entire submission to your judgment.

No contributions, except those of the literary kind, will be requisite for the support of the Society: but if each of us were occasionally to contribute a succinct description of such manuscripts as he had perused, or inspected, with their dates, and the names of their owners, and to propose for solution, such *questions* as had occurred to him concerning *Asiatick* Art, Science, and History, natural or civil, we should possess without labour, and almost by imperceptible degrees, a fuller catalogue of Oriental Books than has hitherto been exhibited; and our correspondents should be apprised of those points to which we chiefly direct our investigations. Much may, I am confident, be expected from the communications of *learned natives*, whether lawyers, physicians, or private scholars, who would eagerly, on the first invitation, send us their *Mekámát* and *Risálahs* on a variety of subjects; some for the sake of advancing general knowledge; but most of them from a desire, neither uncommon nor unreasonable, of attracting notice, and recommending themselves to favour. With a view to avail ourselves of this disposition, and to bring their latent science under our inspection, it might be advisable to print and circulate a short memorial, in *Persian* and *Hindi*, setting forth, in a style accommodated to their own habits and prejudices,

judices, the deſign of our inſtitution. Nor would it be improper hereafter, to give a medal annually, with inſcriptions in *Perſian* on one ſide, and on the reverſe in *Sanſcrit*, as the prize of merit, to the writer of the beſt eſſay or diſſertation. To inſtruct others is the preſcribed duty of learned *Bráhmans;* and if they be men of ſubſtance, without reward; but they would all be flattered with an honorary mark of diſtinction; and the *Mahomedans* have not only the permiſſion, but the poſitive command of their law-giver, *to ſearch for learning even in the remoteſt parts of the globe.* It were ſuperfluous to ſuggeſt, with how much correctneſs and facility their compoſitions might be tranſlated for our uſe, ſince their languages are now more generally and perfectly underſtood than they have ever been by any nation of *Europe.*

I have detained you, I fear, too long by this addreſs; though it has been my endeavour to reconcile comprehenſiveneſs with brevity. The ſubjects, which I have lightly ſketched, would be found, if minutely examined, to be inexhauſtible; and, ſince no limits can be ſet to your reſearches, but the boundaries of *Aſia* itſelf, I may not improperly conclude with wiſhing for your Society, what the Commentator on the Laws prays for the conſtitution of our country, that *it may be perpetual.*

XXV.

THE

THIRD ANNIVERSARY DISCOURSE,

Delivered 2 FEBRUARY, 1786,

BY

THE PRESIDENT.

IN the former diſcourſes which I had the honour of addreſſing to you, Gentlemen, on the *inſtitution* and *objects* of our Society, I confined myſelf purpoſely to general topicks; giving in the firſt, a diſtant proſpect of the vaſt career on which we were entering; and, in the ſecond, exhibiting a more diffuſe, but ſtill ſuperficial, ſketch of the various diſcoveries in Hiſtory, Science, and Art, which we might juſtly expect from our inquiries into the Literature of *Aſia*. I now propoſe to fill up that outline ſo comprehenſively as to omit nothing eſſential, yet ſo conciſely as to avoid being tedious; and, if the ſtate of my health ſhall ſuffer me to continue long enough in this climate, it is my deſign, with your permiſſion, to prepare for our annual meetings, a ſeries of ſhort diſſertations, unconnected in their titles and ſubjects, but all tending to a common point of no ſmall importance in the purſuit of intereſting truths.

Of all the works which have been publiſhed in our own age, or, perhaps, in any other, on the Hiſtory of the

Ancient World, and *the population of this habitable globe*, that of Mr. *Jacob Bryant*, whom I name with reverence and affection, has the beſt claim to the praiſe of deep erudition ingeniouſly applied; and new theories, happily illuſtrated by an aſſemblage of numberleſs converging rays from a moſt extenſive circumference: it falls, nevertheleſs, as every human work muſt fall, ſhort of perfection; and the leaſt ſatisfactory part of it ſeems to be that which relates to the derivation of words from *Aſiatick* languages. Etymology has, no doubt, ſome uſe in hiſtorical reſearches; but it is a medium of proof ſo very fallacious, that, where it elucidates one fact, it obſcures a thouſand; and more frequently borders on the ridiculous, than leads to any ſolid concluſion. It rarely carries with it any *internal* power of conviction, from a reſemblance of ſounds or ſimilarity of letters; yet often, where it is wholly unaſſiſted by thoſe advantages, it may be indiſputably proved by *extrinſick* evidence. We know *à poſteriori*, that both *fitz* and *hijo*, by the nature of two ſeveral dialects, are derived from *filius*; that *uncle* comes from *avus*, and *ſtranger* from *extra*; that *jour* is deducible, through the *Italian*, from *dies*: and *roſſignol* from *luſcinia*, or the *ſinger in groves*; that *ſciuro*, *écureuil*, and *ſquirrel*, are compounded of two *Greek* words deſcriptive of the animal; which etymologies, though they could not have been demonſtrated *à priori*, might ſerve to confirm, if any ſuch confirmation were neceſſary, the proofs of a connection between the members of one great empire; but, when we derive our *hanger*, or *ſhort pendant ſword*, from the *Perſian*, becauſe ignorant travellers thus miſ-ſpell the word *khanjar*, which, in truth, means a different weapon, or *ſandal-wood* from the *Greek*, becauſe we ſuppoſe that *ſandals* were ſometimes made of it, we gain no ground in proving the affinity of nations, and only weaken arguments which might otherwiſe be firmly ſupported. That *Cús*, hen, or, as it certainly is written in one ancient dialect, *Cút*, and in others, probably, *Cás*, enters into the com-

poſition

poſition of many proper names, we may very reaſonably believe; and that *Algeziras* takes its name from the *Arabick* word for an *iſland*, cannot be doubted; but, when we are told from *Europe*, that places and provinces in *India* were clearly denominated from thoſe words, we cannot but obſerve, in the firſt inſtance, that the town in which we now are aſſembled is properly written and pronounced *Calicâtà*; that both *Cátá* and *Cút* unqueſtionably mean *places of ſtrength*, or, in general, any *incloſures*; and that *Gujerât* is at leaſt as remote from *Jezirah* in ſound as it is in ſituation.

Another exception (and a third could hardly be diſcovered by any candid criticiſm) to the *Analyſis of Ancient Mythology*, is, that the *method* of reaſoning, and arrangement of topicks, adopted in that learned work, are not quite agreeable to the title, but almoſt wholly *ſynthetical*; and, though *ſyntheſis* may be the better mode in pure *ſcience*, where the principles are undeniable, yet it ſeems leſs calculated to give complete ſatisfaction in *hiſtorical* diſquiſitions, where every poſtulatum will, perhaps, be refuſed, and every definition controverted. This may ſeem a ſlight objection; but the ſubject is in itſelf ſo intereſting, and the full conviction of all reaſonable men ſo deſirable, that it may not be loſt labour to diſcuſs the ſame or a ſimilar theory in a method purely analytical, and, after beginning with facts of general notoriety, or undiſputed evidence, to inveſtigate ſuch truths as are at firſt unknown, or very imperfectly diſcerned.

The *five* principal nations who have in different ages divided among themſelves, as a kind of inheritance, the vaſt continent of *Aſia*, with the many iſlands depending on it, are the *Indians*, the *Chineſe*, the *Tartars*, the *Arabs*, and the *Perſians*: *who* they ſeverally were, *whence* and *when*

when they came, *where* they now are ſettled, and *what advantage* a more perfect knowledge of them all may bring to our *European* world, will be ſhown, I truſt, in *five* diſtinct eſſays; the laſt of which will demonſtrate the connexion or diverſity between them, and ſolve the great problem, whether they had *any* common origin, and whether that origin was *the ſame* which we generally aſcribe to them.

I begin with *India*: not becauſe I find reaſon to believe it the true center of population, or of knowledge, but becauſe it is the country which we now inhabit, and from which we may beſt ſurvey the regions around us; as, in popular language, we ſpeak of the *riſing* ſun, and of his *progreſs through the Zodiack*, although it had long ago been imagined, and is now demonſtrated, that he is himſelf the center of our planetary ſyſtem. Let me here premiſe, that, in all theſe inquiries concerning the Hiſtory of *India*, I ſhall confine my reſearches downwards to the *Mohammedan* conqueſts at the beginning of the *eleventh* century, but extend them upwards as high as poſſible, to the earlieſt authentic records of the human ſpecies.

India then, on its moſt enlarged ſcale, in which the ancients appear to have underſtood it, compriſes an area of near *forty* degrees on each ſide, including a ſpace almoſt as large as all *Europe*; being divided on the weſt from *Perſia* by the *Arachoſian* mountains, limited on the eaſt by the *Chineſe* part of the farther Peninſula, confined on the north by the wilds of *Tartary*, and extending to the ſouth as far as the iſles of *Java*. This trapezium, therefore, comprehends the ſtupendous hills of *Potyid* or *Tibet*, the beautiful valley of *Caſhmír*, and all the domains of the old *Indoſcythians*, the countries of *Népál* and *Butánt*, *Cámrùp* or *Aſàm*, together with *Siam*, *Ava*, *Racan*,

Racan, and the bordering kingdoms, as far as the *China* of the *Hindus*, or *Sín* of the *Arabian* Geographers; not to mention the whole Weſtern Peninſula, with the celebrated iſland of *Sinhala*, or *Lion-like Men*, at its ſouthern extremity. By *India*, in ſhort, I mean that whole extent of country in which the primitive religion and languages of the *Hindus* prevail at this day with more or leſs of their ancient purity, and in which the *Nágarì* letters are ſtill uſed with more or leſs deviation from their original form.

The *Hindus* themſelves believe their own country, to which they give the vain epithets of *Medhyama*, or *Central*, and *Puńyabhúmi*, or the *Land of Virtues*, to have been the portion of *Bharat*, one of *nine* brothers, whoſe father had the dominion of the whole earth; and they repreſent the mountains of *Himálaya* as lying to the north; and to the weſt, thoſe of *Vindhya*, called alſo *Vindian* by the *Greeks*; beyond which the *Sindhu* runs in ſeveral branches to the ſea, and meets it nearly oppoſite to the point of *Dwáraca*, the celebrated ſeat of their Shepherd God. In the *ſouth-eaſt* they place the great river *Saravatya*; by which they probably mean that of *Ava*, called alſo *Airávati* in part of its courſe, and giving perhaps its ancient name to the gulf of *Sabara*. This domain of *Bharat* they conſider as the middle of the *Jambudwípa*, which the *Tibetians* alſo call the Land of *Zambu*; and the appellation is extremely remarkable; for *Jambu* is the *Sanſcrit* name of a delicate fruit, called *Jáman* by the *Muſelmans*, and by us *roſe-apple*; but the largeſt and richeſt ſort is named *Amrita*, or *immortal*; and the Mythologiſts of *Tibet* apply the ſame word to a celeſtial tree bearing *ambroſial fruit*, and adjoining to *four* vaſt rocks, from which as many ſacred rivers derive their ſeveral ſtreams.

The inhabitants of this extenſive tract are deſcribed by *Mr. Lord* with great exactneſs, and with a pic-

tureſque

urefque elegance peculiar to our ancient language: ‘A people (ſays he) preſented themſelves to mine eyes, ‘clothed in linen garments, ſomewhat low deſcending; ‘of a geſture and garb, as I may ſay, maidenly, and well ‘nigh effeminate; of a countenance ſhy, and ſomewhat ‘eſtranged, yet ſmiling out a glozed and baſhful fami‘liarity.” Mr. *Orme*, the Hiſtorian of *India*, who unites an exquiſite taſte for every fine art with an accurate knowledge of *Aſiatick* manners, obſerves, in his elegant preliminary Diſſertation, that this “country ‘has been inhabited, from the earlieſt antiquity, by a ‘people who have no reſemblance, either in their figure ‘or manner, with any of the nations contiguous to ‘them;” and that, “although conquerors have eſta‘bliſhed themſelves at different times in different parts ‘of *India*, yet the original inhabitants have loſt very ‘little of their original character.” The ancients, in fact, give a deſcription of them, which our early travelers confirmed, and our own perſonal knowledge of them nearly verifies; as you will perceive from a paſſage in the Geographical Poem of *Dionyſius*, which the Analyſt of Ancient Mythology has tranſlated with great

“ To th’ east a lovely country wide extends,
“ *India*, whose borders the wide ocean bounds;
“ On this the sun, new rising from the main,
“ Smiles pleas’d, and sheds his early orient beam.
“ Th’ inhabitants are swart, and in their locks
“ Betray the tints of the dark hyacinth.
“ Various their functions; some the rock explore,
“ And from the mine extract the latent gold;
“ Some labour at the woof with cunning skill
“ And manufacture linen; others shape

" And polish iv'ry with the nicest care:
" Many retire to rivers shoal, and plunge
" To seek the beryl flaming in its bed,
" Or glitt'ring di'mond. Oft the jasper's found
" Green, but diaphanous; the topaz too,
" Of ray serene and pleasing; last of all,
" The lovely amethyst, in which combine
" All the mild shades of purple. The rich soil,
" Wash'd by a thousand rivers, from all sides
" Pours on the natives wealth without controul."

Their ſources of wealth are ſtill abundant, even after ſo many revolutions and conqueſts: in their manufactures of cotton they ſtill ſurpaſs all the world; and their features have, moſt probably, remained unaltered ſince the time of *Dionyſius:* nor can we reaſonably doubt, how degenerate and abaſed ſo ever the *Hindus* may now appear, that in ſome early age they were ſplendid in arts and arms, happy in government, wiſe in legiſlation, and eminent in various knowledge: but ſince their civil hiſtory, beyond the middle of the *nineteenth* century from the preſent time, is involved in a cloud of fables, we ſeem to poſſes only *four* general media of ſatisfying our curioſity concerning it; namely, firſt, their *Languages* and *Letters;* ſecondly, their *Philoſophy* and *Religion;* thirdly, the actual remains of their old *Sculpture* and *Architecture;* and fourthly, the written memorials of their *Sciences* and *Arts.*

I. It is much to be lamented that neither the *Greeks*, who attended *Alexander* into *India*, nor thoſe who were long connected with it under the *Bactrian* Princes, have left us any means of knowing with accuracy, what vernacular

nacular languages they found on their arrival in this Empire. The *Mohammedans*, we know, heard the people of proper *Hinduſtan*, or *India* on a limited ſcale, ſpeaking a *Bháſhá*, or living tongue, of a very ſingular conſtruction, the pureſt dialect of which was current in the diſtricts round *Agrà*, and chiefly on the poetical ground of *Mat'hurà*; and this is commonly called the idiom of *Vraja*. Five words in ſix, perhaps, of this language were derived from the *Sanſcrit*, in which books of religion and ſcience were compoſed, and which appears to have been formed by an exquiſite grammatical *arrangement*, as the name itſelf implies, from ſome unpoliſhed idiom; but the baſis of the *Hinduſtánì*, particularly the inflexions and regimen of verbs, differed as widely from both thoſe tongues, as *Arabick* differs from *Perſian*, or *German* from *Greek*. Now the general effect of conqueſt is to leave the current language of the conquered people unchanged, or very little altered, in its ground-work, but to blend with it a conſiderable number of exotick names, both for things and for actions; as it has happened in every country, that I can recollect, where the conquerors have not preſerved their own tongue unmixed with that of the natives, like the *Turks* in *Greece*, and the *Saxons* in *Britain*; and this analogy might induce us to believe, that the pure *Hindì*, whether of *Tartarian* or *Chaldean* origin, was primeval in Upper *India*, into which the *Sanſcrit* was introduced by conquerors from other kingdoms in ſome very remote age; for we cannot doubt that the language of the *Véda's* was uſed in the great extent of country which has before been delineated, as long as the religion of *Brahmá* has prevailed in it.

The *Sanſcrit* language, whatever be its antiquity, is of a wonderful ſtructure; more perfect than the *Greek*, more copious than the *Latin*, and more exquiſitely refined than either; yet bearing to both of them a ſtronger affinity,

affinity, both in the roots of verbs, and in the forms of grammar, than could poſſibly have been produced by accident; ſo ſtrong, indeed, that no philologer could examine them all three without believing them to have ſprung from ſome common ſource, which, perhaps, no longer exiſts. There is a ſimilar reaſon, though not quite ſo forcible, for ſuppoſing that both the *Gothick* and the *Celtick*, though blended with a very different idiom, had the ſame origin with the *Sanſcrit*; and the old *Perſian* might be added to the ſame family, if this were the place for diſcuſſing any queſtion concerning the antiquities of *Perſia*.

The *characters*, in which the languages of *India* were originally written, are called *Nâgarì*, from *Nagara*, a city, with the word *Déva* ſometimes prefixed, becauſe they are believed to have been taught by the Divinity himſelf, who preſcribed the artificial order of them in a voice from heaven. Theſe letters, with no greater variation in their form, by the change of ſtraight lines to curves, or converſely, than the *Cufick* alphabet has received in its way to *India*, are ſtill adopted in more than twenty kingdoms and ſtates, from the borders of *Caſhgar* and *Khoten*, to *Ráma's* Bridge, and from the *Sindhu* to the river of *Siam*. Nor can I help believing, although the poliſhed and elegant *Dévanágarì* may not be ſo ancient as the monumental characters in the caverns of *Jaraſandha*, that the ſquare *Chaldiack* letters, in which moſt *Hebrew* books are copied, were originally the ſame, or derived from the ſame prototype, both with the *Indian* and *Arabian* characters. That the *Phenician*, from which the *Greek* and *Roman* alphabets were formed by various changes and inverſions, had a ſimilar origin, there can be little doubt: and the inſcriptions at *Canárah*, of which you now poſſeſs a moſt accurate copy, ſeem to be compounded of *Nágarì* and *Ethiopick* letters, which bear a cloſe relation to each other,

other, both in the mode of writing from the left hand, and in the ſingular manner of connecting the vowels with the conſonants. Theſe remarks may favour an opinion entertained by many, that all the ſymbols of *ſound*, which at firſt, probably, were only rude outlines of the different organs of ſpeech, had a common origin. The ſymbols of *ideas*, now uſed in *China* and *Japan*, and formerly, perhaps, in *Egypt* and *Mexico*, are quite of a diſtinct nature; but it is very remarkable, that the order of *ſounds* in the *Chineſe* grammars correſponds nearly with that obſerved in *Tibet*, and hardly differs from that which the *Hindus* conſider as the invention of their Gods.

II. Of the *Indian* Religion and Philoſophy I ſhall here ſay but little; becauſe a full account of each would require a ſeparate volume. It will be ſufficient in this diſſertation to aſſume, what might be proved beyond controverſy, that we now live among the adorers of thoſe very Deities who were worſhipped under different names in old *Greece* and *Italy*; and among the profeſſors of thoſe philoſophical tenets, which the *Ionick* and *Attick* writers illuſtrated with all the beauties of their melodious language. On one hand we ſee the trident of *Neptune*, the eagle of *Jupiter*, the ſatyrs of *Bacchus*, the bow of *Cupid*, and the chariot of the *Sun*; on another we hear the cymbals of *Rhea*, the ſongs of the *Muſes*, and the paſtoral tales of *Apollo Nomius*. In more retired ſcenes, in groves, and in ſeminaries of learning, we may perceive the *Brâhmans*, and the *Sarmanes*, mentioned by *Clemens*, diſputing in the forms of *logick*, or diſcourſing on the vanity of human enjoyments, on the immortality of the ſoul, her emanation from the eternal mind, her debaſement, wanderings, and final union with her ſource. The *ſix* philoſophical ſchools, whoſe principles are explained in the *Derſana Sáſtra*, comprife all the metaphyſicks,

metaphyſicks of the old *Academy*, the *Stoa*, the *Lyceum*; nor is it poſſible to read the *Vedánta*, or the many fine compoſitions in illuſtration of it, without believing that *Pythagoras* and *Pláto* derived their ſublime theories from the ſame fountain with the ſages of *India*. The *Scythian* and *Hyperborean* doctrines and mythology, may alſo be traced in every part of theſe eaſtern regions; nor can we doubt that *Wod*, or *Oden*, whoſe religion, as the northern hiſtorians admit, was introduced into *Scandinavia* by a foreign race, was the ſame with *Buddh*, whoſe rites were probably imported into *India* nearly at the ſame time, though received much later by the *Chineſe*, who ſoften his name into FO'.

This may be a proper place to aſcertain an important point in the Chronology of the *Hindus*; for the prieſts of *Buddha* left in *Tibet* and *China*, the preciſe epoch of his appearance, real or imagined, in this Empire; and their information, which had been preſerved in writing, was compared by the *Chriſtian* miſſionaries and ſcholars with our own era. *Couplet*, *De Guignes*, *Giorgi*, and *Bailly*, differ a little in their accounts of this epoch; but that of *Couplet* ſeems the moſt correct. On taking, however, the medium of the four ſeveral dates, we may fix the time of *Buddha*, or the *ninth* great incarnation of *Viſhnu*, in the year *one thouſand* and *fourteen* before the birth of *Chriſt*, or *two thouſand ſeven hundred and ninety-nine* years ago. Now the *Cáſhmirians*, who boaſt of his deſcent in their kingdom, aſſert that he appeared on earth about *two* centuries after *Criſhna*, the *Indian Apollo*, who took ſo decided a part in the war of the *Máhábhárat*; and if an etymologiſt were to ſuppoſe that the *Athenians* had embelliſhed their poetical hiſtory of *Pandion's* expulſion, and the reſtoration of *Ægeus*, with the *Aſiatick* tale of the *Pándus* and *Yudhiſhtir*, neither of which words they could have articu-

lated, I ſhould not haſtily deride his conjecture: certain it is, that *Pándumandel* is called by the *Greeks* the country of *Pandion*. We have, therefore, determined another intereſting epoch, by fixing the age of *Chriſhna* near the *three thouſandth* year from the preſent time; and, as the three firſt *Avatárs*, or deſcents of *Viſhnu*, relate no leſs clearly to *an* Univerſal Deluge, in which eight perſons only were ſaved, than the *fourth* and *fifth* do to the *puniſhment of impiety*, and the *humiliation* of the *proud*, we may for the preſent aſſume, that the *ſecond*, or *ſilver*, age of the *Hindus* was ſubſequent to the diſperſion from *Babel;* ſo that we have only a dark interval of about a *thouſand* years, which were employed in the ſettlement of nations, the foundation of ſtates or empires, and the cultivation of civil ſociety. The great incarnate Gods of this intermediate age are both named *Ráma*, but with different epithets; one of whom bears a wonderful reſemblance to the *Indian Bacchus*, and his wars are the ſubject of ſeveral heroick poems. He is repreſented as a deſcendant from *Sûrya*, or the *Sun;* as the huſband of *Sítá*, and the ſon of a princeſs named *Caúſeylá*. It is very remarkable, that the *Peruvians*, whoſe *Incas* boaſted of the ſame deſcent, ſtyled their greateſt feſtival *Ramaſitoa;* whence we may ſuppoſe that South *America* was peopled by the ſame race, who imported into the fartheſt parts of *Aſia*, the rites and fabulous hiſtory of *Ráma*. Theſe rites, and this hiſtory, are extremely curious; and although I cannot believe, with *Newton*, that ancient mythology was nothing but hiſtorical truth in a poetical dreſs; nor, with *Bacon*, that it conſiſted ſolely of moral and metaphyſical allegories; nor, with *Bryant*, that all the heathen Divinities are only different attributes and repreſentations of the Sun, or of deceaſed progenitors; but conceive that the whole ſyſtem of religious fables roſe, like the *Nile*, from ſeveral diſtinct ſources; yet I cannot but agree that one great ſpring and ſupport of all idolatry, in the four quarters of the globe, was the

veneration paid by men to the vaſt body of fire which "looks from his ſole dominion like the God of this "world;" and another, the immoderate reſpect ſhewn to the memory of powerful or virtuous anceſtors, eſpecially the founders of kingdoms, legiſlators, and warriors, of whom the *Sun* or the *Moon* were wildly ſuppoſed to be the parents.

III. The remains of *Architecture* and *Sculpture* in *India*, which I mention here as mere monuments of antiquity, not as ſpecimens of ancient art, ſeem to prove an early connection between this country and *Africa*. The pyramids of *Egypt*, the coloſſal ſtatues deſcribed by *Pauſanias* and others, the Sphinx, and the *Hermes Canis*, (which laſt bears a great reſemblance to the *Varáhávatár*, or the incarnation of *Viſhnu* in the form of a *Boar*,) indicate the ſtyle and mythology of the ſame indefatigable workmen who formed the vaſt excavations of *Canárah*, the various temples and images *of Buddha*, and the idols which are continually dug up at *Gayá*, or in its vicinity. The letters on many of theſe monuments appear, as I have before intimated, partly of *Indian*, and partly of *Abyſſinian* or *Ethiopick*, origin; and all theſe indubitable facts may induce no ill-grounded opinion, that *Ethiopia* and *Hinduſtán* were peopled or colonized by the ſame extraordinary race; in confirmation of which, it may be added, that the mountaineers of *Bengal* and *Bahár* can hardly be diſtinguiſhed in ſome of their features, particularly their lips and noſes, from the modern *Abyſſinians*, whom the *Arabs* call the children of *Cúſh*. And the ancient *Hindus*, according to *Strabo*, differed in nothing from the *Africans*, but in the ſtraightneſs and ſmoothneſs of their hair, while that of the others was criſp or woolly; a difference proceeding chiefly, if not entirely, from the reſpective humidity or dryneſs of their atmoſpheres. Hence the people who *received the firſt light of the riſing*

ſun, according to the limited knowledge of the ancients, are ſaid by *Apuleius*, to be the *Arü* and *Ethiopians*, by which he clearly meant certain nations of *India*; where we frequently ſee figures of *Buddha* with *curled hair*, apparently deſigned for a repreſentation of it in its natural ſtate.

IV. It is unfortunate that the *Silpi Sáſtra*, or *Collection of Treatiſes on Arts and Manufactures*, which muſt have contained a treaſure of uſeful information on *dying*, *painting*, and *metallurgy*, has been ſo long neglected, that few, if any, traces of it are to be found; but the labours of the *Indian* loom and needle have been univerſally celebrated; and *fine linen* is not improbably ſuppoſed to have been called *Sindon*, from the name of the river near which it was wrought in the higheſt perfection. The people of *Colchis* were alſo famed for this manufacture; and the *Egyptians* yet more, as we learn from ſeveral paſſages in ſcripture, and particularly from a beautiful chapter in *Ezekiel*, containing the moſt authentic delineation of ancient commerce, of which *Tyre* had been the principal mart. Silk was fabricated immemorially by the *Indians*, though commonly aſcribed to the people of *Serica*, or *Tancùt*, among whom probably the word *Sèr*, which the *Greeks* applied to the *ſilkworm*, ſignified *gold*; a ſenſe which it now bears in *Tibet*. That the *Hindus* were in early ages a *commercial* people, we have many reaſons to believe; and in the firſt of their ſacred law tracts, which they ſuppoſe to have been revealed by *Menu* many *millions* of years ago, we find a curious paſſage on the legal *intereſt* of money, and the limited rate of it in different caſes, with an exception in regard to *adventures at ſea*; an exception which the ſenſe of mankind approves, and which commerce abſolutely requires; though it was not before the reign of *Charles* I. that our own juriſprudence fully admitted it in reſpect to maritime contracts.

We are told by the *Grecian* writers, that the *Indians* were the wiſeſt of nations; and in moral wiſdom they were certainly eminent. Their *Níti Sáſtra*, or *Syſtem* of *Ethicks*, is yet preſerved; and the Fables of *Viſhnuſerman*, whom we ridiculouſly call *Pilpay*, are the moſt beautiful, if not the moſt ancient, collection of apologues in the world. They were firſt tranſlated from the *Sanſcrit*, in the *ſixth* century, by the order of *Buzerchumihr*, or *Bright as the Sun*, the chief phyſician, and afterwards *Vezír*, of the great *Anúſhireván*, and are extant under various names in more than twenty languages; but their original title is *Hitópadéſa*, or *Amicable Inſtruction*: and, as the very exiſtence of *Æſop*, whom the *Arabs* believe to have been an *Abyſſinian*, appears rather doubtful, I am not diſinclined to ſuppoſe that the firſt *moral fables* which appeared in *Europe* were of *Indian* or *Ethiopian* origin.

The *Hindus* are ſaid to have boaſted of *three* inventions, all of which, indeed, are admirable; the method of inſtructing by *Apologues*; the *decimal Scale*, adopted now by all civilized nations; and the game of *Cheſs*, on which they have ſome curious treatiſes: but if their numerous works on Grammar, Logick, Rhetorick, Muſick, all which are extant and acceſſible, were explained in ſome language generally known, it would be found, that they had yet higher pretenſions to the praiſe of a fertile and inventive genius. Their lighter poems are lively and elegant; their epick, magnificent and ſublime in the higheſt degree. Their *Purána's* compriſe a ſeries of mythological Hiſtories, in blank verſe, from the *Creation* to the ſuppoſed incarnation of *Buddha*; and their *Védas*, as far as we can judge from that compendium of them which is called *Upaniſhat*, abound with noble ſpeculations in metaphyſicks, and fine diſcourſes on the being and attributes of *God*. Their moſt ancient medical book, entitled *Chereca*, is believed to be the

the work of *Siva*: for each of the Divinities in their *Triad* has at leaſt one *ſacred* compoſition aſcribed to him. But as to mere human works on *Hiſtory* and *Geography*, though they are ſaid to be extant in *Caſhmír*, it has not been yet in my power to procure them. What their *aſtronomical* and *mathematical* writings contain, will not, I truſt, remain long a ſecret: they are eaſily procured, and their importance cannot be doubted. The Philoſopher whoſe works are ſaid to include a Syſtem of the Univerſe, founded on the principle of *Attraction* and the *central* Poſition of the Sun, is named *Yavan Achárya*, becauſe he had travelled, we are told, into *Ionia*. If this be true, he might have been one of thoſe who converſed with *Pythagoras*. This at leaſt is undeniable, that a book on Aſtronomy, in *Sanſcrit*, bears the title of *Yavana Jática*, which may ſignify the *Ionick Sect*. Nor is it improbable, that the names of the Planets and *Zodiacal* Stars, which the *Arabs* borrowed from the *Greeks*, but which we find in the oldeſt *Indian* records, were originally deviſed by the ſame ingenious and enterpriſing race, from whom both *Greece* and *India* were peopled; the race who, as *Dionyſius* deſcribes them,

——— 'first aſſayed the deep,
'And wafted merchandize to coaſts unknown:
'Thoſe who digeſted firſt the ſtarry choir,
'Their motions mark'd, and call'd them by their names."

Of theſe curſory obſervations on the *Hindus*, which it would require volumes to expand and illuſtrate, *this* is the reſult; that they had an immemorial affinity with the old *Perſians*, *Ethiopians*, and *Egyptians*; the *Phenicians*, *Greeks*, and *Tuſcans*, the *Druids* of *Gaul*, and *Celts*; the *Chineſe*, *Japaneſe*, and *Peruvians*; whence, as no reaſon appears for believing that they were a co-

lony from any one of thoſe nations, or any of thoſe nations from them, we may fairly conclude that they all proceeded from ſome *central* country, to inveſtigate which will be the object of my future Diſcourſes; and I have a ſanguine hope that your collections, during the preſent year, will bring to light many uſeful diſcoveries; although the departure for *Europe* of a very ingenious member, who firſt opened the ineſtimable mine of *Sanſcrit* literature, will often deprive us of accurate and ſolid information concerning the languages and antiquities of *India*.

XXVI.

XXVI.

CORRECTIONS

OF THE

Lunar Method of finding the Longitude.

By Mr. REUBEN BURROW.

THE intent of the following remarks is to point out an error in the uſual Practice of making the Lunar Obſervations, and another in the Method of Computation.

It is well known that a little before and after the conjunction, the whole hemiſphere of the Moon is viſible, and the enlightened creſcent ſeems to extend ſome diſtance beyond the duſky part. Now, having determined the longitude of a place from the eclipſes of Jupiter's Satellites, I took ſeveral ſets of diſtances of the Moon's limb from a Star near the time of the conjunction, both from the bright and the duſky parts of the circumference, and having calculated the reſults, I found that thoſe taken from the duſky part were much nearer the truth than the others. The nature of the error evidently ſhewed, that the ſtar had really been at ſome diſtance from the limb when it appeared to be in contact with it; and, as the error was a conſiderable part of a degree, I ſaw it would be of conſequence to diſcover the cauſe of it; which, however, was obvious enough from *Newton's* principles, and may be explained as follows.

Let

Let AD be the diameter of the moon, and A the center of a ſtar in contact with the moon's limb: now, as the enlightened part of the moon evidently appears to extend beyond the duſky part, let the concentric circle BC repreſent the moon's limb thus apparently magnified, and ſuppoſe the ſtar to be equally magnified; then with the center A, and the diſtance DC, deſcribe a circle, which conſequently will touch the moon's apparent circumference inwardly: now, as this laſt is a conſequence of ſuppoſing the center of the ſtar to touch the circumference of the moon, excluſive of the deception, it follows, *that the proper method of taking the diſtance, is to make the ſtar appear to touch the moon inwardly.*

But all the writers on this ſubject have particularly directed that the ſtar be made to touch *outwardly*. Let B, therefore, be the point of contact, and *a* the center: the error then is Aa, or the ſum of the apparent increaſe of the moon's radius, and the apparent radius of the ſtar: this quantity, it is evident, will make a conſiderable error in the reſult; and errors ariſing from this ſource are the more to be attended to, as they are not of a kind to be leſſened by increaſing the number of obſervations. The ſame reaſoning is applicable to the Sun and Moon, with very little alteration.

The diſtance of the Moon from the Sun or a Star, at each three hours, is given in the Nautical Ephemeris; and the method of inferring the time for any intermediate diſtance, is by ſimple proportion: this would be juſt if the Moon's motion was uniform: but as this is not the caſe, the velocity ſhould be taken into the account, as well as the ſpace, in determining the time taken by the Moon to move any given diſtance; and the proper meaſure of the velocity is ſuch a quantity as has the ſame ratio to the ſpace deſcribed, as three hours have to the time that has been actually taken to move

move the given diſtance: to find this quantity correctly, would require interpolation; but it will be ſufficient in practice to find the time firſt by the common method, and then to correct the interval for three hours to that time, by taking a proportional part of the ſecond difference of the Moon's diſtance at the beginning of each three hours; ſuppoſing the firſt differences to anſwer to the middle of each interval.

The laſt correction, though not ſo conſiderable as the firſt, will often bring the reſult nearer to the truth by three, four, five, or ſix miles, and ſometimes more, which in geographical determinations is of conſequence; and, by paying attention to thoſe and ſome other cauſes of error, which ſhall be pointed out hereafter, the reſults in general will be much nearer to the truth than is uſually imagined. It is common to throw blame on the imperfections of the Lunar Tables, but it would be much more properly applied to bad inſtruments and bad obſervers.

CONTENTS

CONTENTS

OF THE

FIRST VOLUME.

	Page
The Introduction - - - -	i
The Preliminary Discourse - - -	ix
I. On the Orthography of *Asiatick* Words -	1
II. Astronomical Observations - - -	57
III. A Royal Grant found at *Mungir* - -	123
IV. An Inscription on a Pillar near *Buddal* -	131
V. On the Ruins at *Mavalipuram* - - -	145
VI. Hints on Friction in Mechanicks - -	171
VII. An interview with the young *Lama* - -	199
VIII. A Journey to *Tibet* - - -	207
IX. On the Gods of *Greece, Italy,* and *India* -	221
X. On a Cave with an Inscription near *Gaya* -	276
XI. An Inscription at *Buddha Gaya* - - -	284
XII. On the *Sic'hs* and their College - -	288
XIII. On the *Vina,* or *Indian* Lyre - -	295
XIV. On the *Madhuca* Tree - - -	300
XV. On the Mode of Distilling at *Chitra* - -	309
XVI. 1. On calculating the Moon's Parallaxes -	320
2. On the Artificial Horizons - -	327
3. On the Intersections of Curves - -	330
XVII. 1. On extracting the Essential Oil of Roses	332
2. On the Gold of *Limong* in *Sumatra* -	336

CONTENTS.

	Page
XVIII. On the Literature of the *Hindus* - -	340
XIX. 1. A Royal Grant found at *Tana* - -	357
2. On the City of *Tagara* - - -	369
XX. On the *Vajracita* or *Pangolin* - - -	376
XXI. Inscriptions on the Staff of *Firuz Shah* -	379
XXII. A Conversation with an *Abyssinian* - -	383
XXIII. On the *Indian* Trial by Ordeal - -	389
XXIV. The Second Anniversary Discourse - -	405
XXV. Discourse III. On the *Hindus* - -	415
XXVI. The Lunar Observations corrected - -	432

APPENDIX: A Meteorological Journal.

LIBRARY OF THE BOMBAY BRANCH OF THE ROYAL ASIATIC SOCIETY.

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APPENDIX

TO THE

FIRST VOLUME

OF

ASIATICK RESEARCHES.

A

METEOROLOGICAL JOURNAL,

Kept by Colonel T. D. PEARSE, *from* 1ſt *March* 1785, *to* 28th *February* 1786.

Day.	Time.	Barometer.	Hygrometer.	Thermometer. In.	Thermometer. Out.	Clouds. Kind.	Clouds. Quant.	Wind. Quarter.	Wind. Force.	Rain.	March 1785, Miscellaneous.
	m. m.										
	22.49	☾ L. Q.									
3											(a)
6	7.15 A	29,963		77		thin	3	SSW	1		(b)
7	3. P	29,915		79		thin	5	SSW	3		(c)
	6.30 P					thick thunder	10	SSW	3		
8	7.30 A	30,00		76		thick thunder	9	SSW	2		(d)
	7. P					thick	10				
	8. P							NW			
9	7. A	30,032		75,5		thick thunder	8	NW	1		(e)
	1.55 P	29,97		79,5		none					
	16.27	☽ New									
10	4.[illegible] P					thick thunder	9	NW	6		
	5.39 P					ditto	8	S	3		
	6.[illegible]5 P	29,95		76,5		ditto	8	S	4	,142	(f)
11	7. A	30,00		70				S by W	1		
12	[illegible] A	29,95		79				S	1		(g)
13	6. A	29,85		79		thin	2	S by E	1		(h)
	3. P					thick	4	S	3		
	4. P					thick thunder	8	S by E	3		
	5.12 P	29,77		80,5		thick thunder	9	S	5	,259	
	5.30 P										
14	7. A					thick	6	SSE	2		
	2.20 P	29,816		83		thick	9	SSE	2		
15	6.45 A	29,854		79,5				S by E	1		(i)
	8.25 P					thick thunder	9	N	5		
16	7.40 A	29,873		78		ditto	10			,022	(k)
	2.20 P	29,813		82		thick loose	8	SSW	4		

Day.	Time.	Barometer.	Hygrometer.	Thermometer.		Clouds.		Wind.		Rain.	March 1785, Miscellaneous.
				In.	Out.	Kind.	Quant.	Quarter.	Force.		
17	12.52 - 7.15 A	D. F. Q. 29,887		80		thick	5	SE	1	,039	(l)

(a) Laſt Friday the fog was exceſſive, and did not begin to clear till nine. Saturday the ſame. Sunday it began to clear about 7.

(b) The fog is gone off to day already: it was but ſlight.

(c) Much lightning in the NW. and diſtant thunder.

(d) Much lightning in the NW. A puff from the NW. but without rain or thunder.

(e) There was a very ſmall ſprinkling of rain juſt now.

(f) In the morning we had a thick fog, which formed into clouds, and went over to the N. and at 2 maſſes were formed there; from whence at 4,50 we had a ſtorm, which was over in half an hour; and at Dumdum, about 10 miles off, they had heavy hail.

(g) Fog ſo thick that an object at a 100 yards is inviſible.

(h) 6. A. foggy. A ſtorm will come on in the evening. 4. P. Diſtant thunder. 5. 2. P. We have had a furious ſtorm of hail with thunder and lightning, and SW to SSE 6. 5. 30. P. Loud thunder ſtill continues in the ENE. where the maſs now is.

(i) 6.45 A. Every thing hidden in fog, which will produce a ſtorm at night. 8.25 P. Much lightning, and the expected ſtorm coming on.

(k) 7.40 A. The thunder rolled all night: exceſſive lightning.

(l) 7.15 A. A ſtorm began to gather about 5 P. and we had much lightning about 10. Between 12 and 1 it began, and the wind very violent. The thunder cloſe, and ſo heavy, that it jarred the whole houſe like an earthquake. 2.30 P. It has been very gloomy at times all day.

Day.	Time.	Barometer.	Hygrometer.	Thermometer. In.	Thermometer. Out.	Clouds. Kind.	Clouds. Quant.	Wind. Quarter.	Wind. Force.	Rain.	March 1785, Miscellaneous.
17	2.30 P	29,828		84		thick	4	SSE	2		
18	6. A	29,915		80		thin	3	S	1		
	2. P	29,85		86		loose	3	S	4		
19	2.20 P	29,813		84				W by S	2		
20	1.30 P	29,833		85		thin	9	SSW	3		
21	6.15 A	29,813		81		thin	2	SW by S	2		
	2. P	29,80		86		thick and thin	5	S by W	4		
22	6.30 A	29,825		82		thick loose	10	SW by S	3		(m)
	2. P	29,837		86		thick	3	SW by S	5		
23	2. P	29,784		85,5		thin	7	SW by S	3		(n)
	7.45					thick thunder	10	SSW	5	,084	
24	8. A	29,87		81,5		thick	7				(o)
	2. P	29,825		85		thick thunder	10	W by S	2		
	9. P									,001	
	h. m. 16.02	☽ Full									
25	6.15 A	29,859		82		thick	4	SSE	2		
	2. P	29,866		86		none		S	3		
26	5.45 A	29,915		82		thick loose	10	S	1		(p)
	2.15 P	29,87		86,2				S	4		
27	7.15 A	29,865		82		thick	10				
	2.15 P	29,785		87				S	2		
28	6.45 A	29,795		81				S	1		(q)
	2.10 P	29,798		87,5				SSW	4		
29	6.45 A	29,862		81,5		thin	2	S½W	1		(r)
	2.15 P	29,830		87,0				SSW½W	3		
30	6.45 A	29,822		81,5		thin	5	S½E	1		(s)
	1.30 P	29,848		83,5		thick	10	NE	1		

Day.	Time.	Barometer.	Hygrometer.	Thermometer.		Clouds.		Wind.		Rain.	March 1785, Miſcellaneous.
				In.	Out.	Kind.	Quant.	Quarter.	Force.		
31	7.15 A	29,862		79,0		thick	10	NNE	1	,007	(t)
	2. P	29,797		83,0		thick	9	NNW	1		
								Total in March		,554	

(m) Great appearance of approaching rain and ſtorms.

(n) 8. A. The morning was very cloudy, and the wind ſtrong; it preſaged a ſtorm; and I ſtill expect one before midnight. At ſun-ſet it threatened, and at 7 P. the lightning began to be vivid in the WNW. It rained for about ten minutes. The thunder was very near.

(o) 8, A. The wind began about 11. P. and raged till paſt 1 o'clock with uncommon violence. 2. P. Exceſſively gloomy. 9. P. At 7 we had a thunder guſt, which was ſoon over, with a ſprinkling only.

(p) 5. 45 A. The clouds began to collect at 8 laſt night, and are very thick. 2. 15 P. The clouds continued very thick till paſt 10, and were not diſpelled till paſt 1.

(q) 6. 45 A. Exceſſively thick fog. 2. 10 P. The true along-ſhore wind, which diſorders the whole frame.

(r) 6. 45 A. Foggy. Laſt night the clouds were thick 10 at 11 P.

(s) 6.45 A. Foggy. It has been extremely gloomy ever ſince 7 o'clock, and about noon we had a few drops of rain.

(t) 7.15 A. We had a ſmall ſhower of rain about ſun-riſe, and there has been more at a diſtance from the feel of air.

Day.	Time.	Barometer.	Hygrometer.	Thermometer. In.	Thermometer. Out.	Clouds. Kind.	Clouds. Quant.	Wind. Quarter.	Wind. Force.	Rain.	April 1785. Miscellaneous.
1	6.45 A	29,866		79,5		thick thunder	10	WNW	2		
	2.10 P	29,816		82		thick	10	SE	1		(a)
	10.16	☽ L. Q.									
2	6.45 A	29,828		77				E½S	1		
	2. P	29,777		83,7		thick scattered	3	WNW	3		
3	6.45 A	29,765		79				S by W	1		
	2. P	29,711		85,5		none		WNW	2		
4	7. A	29,785		80				SE by S	1		
	2. P	29,750		86				WNW	1		
5	6. A	29,763		78		thick	2	SE	2		(b)
	1.45 P	29,760		86,7		thick gathered	3	S by E	2		
6	6.30 A	29,76		80,5		thick	5	E	3		(c)
	2. P	29,748		88		thick	1	SW½S	4		
7	7. A	29,82		80							
	2. P	29,79		87,5				SSW	5		(d)
8	7. A	29,846		81,5		loose	4	S by E	2		(e)
	2. P	29,761		87,5	94			SW½S	4		
	1.39	☽ New									
9	6.30				81	thick loose	10	S	2		
	2. P	29,75		88,5	96,5			S by W	4		
10	7.45 A	29,76		84		thick	9	SSW	5		
	2. P	29,718		88	92,2			SSW	5		(f)
	5.30 P	29,708		87	88	thick	10	SSW	5		
11	6.40 A	29,788		85	81,5	thin	7	SSW	2		(g)
	2. P	29,776		89,5	96,0	thin	8	SW by S	3		
	6.15 P	29,779		88	83,15	thick thunder	8	SSW	3		(h)
	8. P									,016	

Day.	Time.	Barometer.	Hygrometer.	Thermometer. In.	Thermometer. Out.	Clouds. Kind.	Clouds. Quant.	Wind. Quarter.	Wind. Force.	Rain.	April 1785. Miscellaneous.
12	7.15 A	29,740			83						
	2.30 P	29,765		90,5	100,5			NE	2		
13	6 30 A	29,783		82	81	thick and thin	10	SW by S	2		
	10. P	29,818		84	83,5	thick	10	N	1	,002	(i)
14	7. A	29,820		83	85	thick	9	S by W	3		
	2.30 P	29,848		86	88	thick	10	S	2		(k)
15	7. A	29,915	28	82	81	thick	10	S½W	1		
	1.45 P	29.90	22,5	85	92	thick	10	NE	1		(l)

(a) We had a ſprinkling rain to-day of half an hour's duration.

(b) Exceſſively thick haze.

(c) Laſt night the clouds were ſo heavy that they ſeemed to threaten a ſtorm.

(d) There were flying clouds from 8 till 11 to-day, but all are gone.

(e) Yeſterday evening there was a maſs over Calcutta, and much lightning and ſome thunder, and this morning we had a fog.

(f) There will be a ſtorm to day. 5 30 P. Diſtant thunder. The bank is not yet formed.

(g) The wind was tempeſtuous the greateſt part of the night, but we had not any rain. It is now foggy, and threatens.

(h) Yeſterday there was every reaſon to expect a violent ſtorm, but it went off from us. To-day there was but little expectation, and now it rains ſmartly, and there has been a great deal of thunder; and all this without any change of wind.

(i) We had a ſmall ſhower at 1, and another juſt now. The wind was NE 2 all the afternoon.

(k) The wind changed ſuddenly juſt after laſt obſervation to the S again, and we had a very windy night. 2.30 P. It has been gloomy all day.

(l) A ſprinkling rain in very diſtant drops. The wind of the night was of ſuch a kind, that it prevented the poſſibility of ſleeping.

The morning rain, and a like ſprinkling ſince, could not be meaſured.

Day.	Time.	Barometer.	Hygrometer.	Thermometer. In.	Thermometer. Out.	Clouds. Kind.	Clouds. Quant.	Wind. Quarter.	Wind. Force.	Rain.	April 1785, Miscellaneous.
						Brought forward,				,018	
16	7. A	29,95	15	80	82,5	thick	10	N	4		(m)
	8.15 A	29,99	17,5	80	74	ditto	10	NE by E	3	,087	
	2.15 P	29,893	29	80	80	ditto	10	NE	4		
	3.44 P	☽ F. Q.									
17	7.15 A	29,864	32	70,5	86	thick	10	E by N	4	1,314	(n)
	2.15 P	29,79	43	78	75	thick	10	S by E	3	,763	
	8.20 P	29,828	44	78	74	thick looſe	10	SE½E	3	,752	
18	6.15 A	29,80	46	79,5	76	thick	9	SSW½S	1	,284	(o)
	2.15 P	29,839	48,3	80,5	86	thick white ſcat.	4	NW	1		
19	7. A	29,913	50	80		thick looſe	7				(p)
	2.15 P	29,813	43,5	83,5	90	thick white	7	SW½S	2		
20	5.40 A	29,8	43,5	79,5	76	thin	4	S by W	2		
	2.25 P	29,792	42	86	90	thick looſe	4	S	4		
	10. P	29,881	36,5	76,5	80,9	thick	10	NNE	3		(q)
21	6. A	29,812	40	76,9	73,5	thick	8	SSE	3		
22	8. A	29,876	41	77	74	thick	10	SW by S	3	,410	(r)
	2. P	29,785	36,5	82	89	ſcattered	2	SSW	3	,007	
23	5. A	29,750	50	79	77			SW	2		
	2.15 P	29,760	46	86	93			S by W	2		
24	7. A	29,748	54	82,5	84			S	2		
	2. P	29,722	45	87,5	94	ſcattered	2	S by W	3		
	8.8 P	☽ Full									
25	6.30 A	29,71	53,5	83	83			SE	2		
	2. P	29,71	42	90,5	96,5	ſcattered	8	S½E	4		(s)
26	7.15 A	29,740	47	84	85	ſcattered	3	S	2		(t)
	2. P	29,735	39	89	94	thick	9	S by E	4		
27	7. A	29,705	47,5	84						,220	(v)

Day.	Time.		Barometer.	Hygrometer.	Thermometer. In.	Thermometer. Out.	Clouds. Kind.	Clouds. Quant.	Wind. Quarter.	Wind. Force.	Rain.	April 1785. Miscellaneous.
27	2.	P	29,697	43	87,5	91	thick	9	S by E	4		
	7.	P	29,711	43	83	86	thick thunder	10	NNE to NNW	7	,170	
	8.	P										
	9.45	P							WNW	9	,270	
28	6.45	A	29,713	40	81,5	78	none		SW by S	2	,013	(w)
	2.	P	29,723	44	87,5	93			SW by S	2		
29	6.	A	29,713	49	83,5	80,5	none		SW by S	2		(x)
	2.	P	29,753	37	87,5	93			W by S	2		
30	7.	A	29,79	50	83,5	84	none		SW by S	2		
	2.	P	29,79	37,5	91	97,5	thick small scat.	2	SSW	4		
									Total in April		4,308	

(m) It has been a blowing cold night; wind northerly, and it sprinkles rain. 8.15 A. An heavy shower just over, and drizzling rain still continues. 2.15 P. We have had more sprinkling rain.

(n) About 6 yesterday it began to rain in drops; before 9 it was smart rain. It has continued all night, and still rains. 2.15 P. It has rained incessantly all day. It still rains hard, and now the clouds begin to break a little. 8.20 P. It still sprinkles.

(o) It began to thunder at a great distance about 8, and by 12 it was near us; and this put an end to the rain before 3 A.

(p) The morning was foggy.

(q) A small shower of rain, and the wind changed from S to NNE.

(r) At 12 P. a mass formed in the NW. came on; and in a short time we had a storm without thunder. It sprinkles to-day. 2. P. Produce of the sprinkling.

(s) Very hazy and foul air.

(t) Lightning last night; and very foul air to-day.

(v) A regular northwester last night at 8 P. 7 P. Springling rain begun. 8 P. The produce of the storm, which has abated: distant thunder. 9.45 P. A very severe storm just over, which began about 8.20. It still thunders.

(w) This was, with produce of a small shower, about 10.30 P.

(x) The night very hot, and the air loaded with damp; the morning cool and pleasant.

Day.	Time.	Barometer.	Hygrometer.	Thermometer. In.	Thermometer. Out.	Clouds. Kind.	Clouds. Quant.	Wind. Quarter.	Wind. Force.	Rain.	May 1785, Miscellaneous.
1	7.40 A	29,813	47,5	84	86			SW	3		
	2.10 P	29,762	32,5	90	98,5			W	3		
	6.22 A	☽ L. Q.									
2	7.45 A	29,750	47,5	84	86	ſcattered	3	SW	4		
	2. P	29,710	38	89	98	ditto	1	SSW	3		
3	6. A	29,712	45	83,9	82			SSW	2		
	2. P	29,720	38	89	95	none		SSW	4		
4	6. A	29,735	39	83,3	82			S by W	2		
	2.20 P	29,780	36	88,5	93			SSW	4		
5	5.30 A	29,745	43	83,5	81,5	looſe	9	S by W	2		
	2. P	29,746	37	89	94	ditto	3	S by W	5		
6	5.30 A	29,808	37	82	79,5			S by W	2		(a)
	2. P	29,800	32	88	94,5	thin	2	S by W	5		
	8.45 P	29,997	28,5	82,5	78,5	thick thunder	10	NW by W	7		
	9. P	30,000	32,5	82	72	ditto	10	NW by W	3	,328	
7	5.30 A	29,840	31,5	81,5	76,5	thin	8	NNW	1		
8	6. A	29,897	40	81	81	thick	5	S by W	1		
	2.30 A	29,90	32,5	88	94	thick	3	SSW	4		
	10.25 P	☽ New									
9	5.30 A	29,875	44	81,5	80	thin	7	S	1		
	2. P	29,882	34	88	95,5	thick	6	SW by S	4		
10	7. A	29,867	41	82,7	84,6	thin	3	SW by S	3		
	2. P	29,843	32,5	88	95,5	thick	5	S by W	4		
11	7. A	29,810	40	83,3		thick and thin	10				
	2. P	29,783	31,5	89	97,5	thick ſcat.	2	SSW	4		
	7.30 P	29,744	35,5	87,5	86,7	thunder	4	SSW	3		(b)
	7.47 P	29,814		87		ditto	9	NW	5		
	7.55 P	29,814	31	87	82	thunder	9	NW	7		

Day.	Time.	Barometer.	Hygrometer.	Thermometer. In.	Thermometer. Out.	Clouds. Kind.	Clouds. Quant.	Wind. Quarter.	Wind. Force.	Rain.	May 1785. Miscellaneous.
11	8.25 P	29,808	35	83	73	ditto	10	NW by W	2	,325	
	9. P	29,754	36	79,5	74	ditto	10	ENE	2		
12	5.40 A	29,718	41	82,5	81	thick	10	S by W	2		
	2.20 P	29,752	32	89	96			SSW	4		
13	7.30 A	29,753	42	85	85	thin	7	S	4		
	2.20 P	29.754	35,5	91,5	98,5	loose	8	S by E	3		(c)
14	5. A	29,785	35	82	78	thick	3	N by W	1		(d)
15	5. A	29,797	39	81,9	81,3	thin		E by S	2		
	2. P	29,765	26	90,5	96		2	NE	3		
	7.10 P	29,752	24	88,7	88,3	thick thunder	9	W by S	3		(e)
16	6.15 A	29,777	34	83	82,2	thin	2	NE	1		
	8.54 A	☽ F. Q.									
	2. P	29,740	17,5	89	95,5	thick thunder	4	WNW	2		
								Carried forward		,653	

(a) Much lightning laſt night, and a maſs in N and NW. from whence we had a blaſt of wind at 10 P. 8.45 P. Sprinkling rain begun. 9. P. Very heavy thunder; a ſmart ſhower juſt over.

(b) A heavy thunder maſs in NW. and much lightning, with diſtant thunder. 7.47 P. The wind juſt changed, and the maſs reached the zenith. 7.55 P. Small rain begun. 8.25 P. Heavy rain over ſmall rain continues.

(c) A very oppreſſive heat to-day. The air does not carry off perſpiration, and makes the whole body calmmy and comfortleſs.

(d) The heat produced thunder all the afternoon till near ten, with ſqualls of wind from every quarter in turn, but without rain.

(e) The wind ſhifted about a quarter of an hour ago.

Day.	Time.	Barometer.	Hygrometer.	Thermometer. In.	Thermometer. Out.	Clouds. Kind.	Clouds. Quant.	Wind. Quarter.	Wind. Force.	Fall.	May 1785. Miscellaneous.
						Brought forward,				,653	
17	6.15 A	29,810	32,5	80,5	80,7	thick	7	ENE	2		
	2.15 P	29,785	25	89,5	98,5			SW by W	4		(f)
18	7.30 A	29,868	37,5	82	84,5	loose	3	E by S	3	,057	(g)
	10.30 A	29,895	36	85,8	87,7	thunder	10	SSW	4		
	11.5 A	29,886	36	81,7	78	thunder	10	ENE	3	,558	
	2.20 P	29,813	38	85	90	thick and thin	4	SE	3		
19	7.10 A	29,850	37,0	80	78,5	thick and thin	5	NW by W	3	,003	(h)
	2.15 P	29,763	30	85,7	94,5	scattered hard	2	WSW	3		
22	7.5 A	29,713	36	83,5	85,3			NE	2		(i)
	2.10 P	29,677	28	90	95,5	thick	7	E	3		
23	7.30 A	29,655	38	84	87	thin	3	NE by E	2		(k)
	2.10 P	29,613	27,5	89,3	95	thick	6	NW	3		
24	7.55 A	29,563	37	88	92			SW by S	4		
	9.22 A	☽ Full									
	2. P	29,515	22	92,3	101,0	scattered	4	WNW	3		
	6.40 P	29,502	21	91,5	91,5	thunder	8	N	3		(l)
	6.55 P					ditto	8	SSE	5	,240	
25	7.40 A	29,563	21	81,7	80,7	thin and thick	10	S by W	3	,303	(m)
	2. P	29,573	37	90	96	ditto	10	SSW	4		
	8.50 P	29,592	33	80,5	74,8	thunder remains	10	S by E	3	,562	
26	7.50 A	29,640	37,5	81	80	thin uniform	10	E by S	3	,026	(n)
	2.40 P	29,616	35	86,5	93	thin	10	SSW	3		
27	7. A	29,650	45	84	84	thin	10	SSW	3		
28	7.30 P									,336	(o)
	11. P	29,765	40	82	76	thunder	10	W by N	4		
29	8.30 A	29,742	38	84	86,5	scattered	2	SSW	3	,082	
	2.23 P	29,696	39	88,3	92,5	thick	7	SSW	5		

Day.	Time.	Barometer.	Hygrometer.	Thermometer. In.	Thermometer. Out.	Clouds. Kind.	Clouds. Quant.	Wind. Quarter.	Wind. Force.	Rain.	May 1785, Miscellaneous.
29	9.10 P	29,703	43,5	86	86	thunder	10	S	0		
	8.25 P	29,757	43,5	86	86	ditto	10	N by E	1		
30	6.40 A	29,710	47	84	83,5	thick and thin	5	SW by W	2	,173	
	10.40 P	29 663	44	86,5	85,5	thunder	10	SSW	3		(p)
31	7.40 A	29,641	46	86,3	80	thunder	10	ESE.	2	,697	(q)
	11.57 A	☽ L. Q.									
	2.20 P	29,590	44	87	93	thick	7	SW	3		
								Total in May -		3,690	

(f) The clouds were 6 about 10, but are all gone.

(g) A ſmall thunder ſhower at 7 P. yielded the water. It came from ENE. 10.30. A. A thunder ſhower juſt over of about ten minutes duration. 11.5 A. A very heavy thunder ſtorm juſt over: it began immediately after laſt obſervation.

(h) We had another ſtorm in the night, with a ſprinkling of rain.

(i) We had a maſs of thunder clouds from NNW. laſt night without rain. 2.10 P. The heat very oppreſſive.

(k) We were almoſt ſuffocated laſt night. I could not cloſe my eyes till paſt four.

(l) It rains, and there has been diſtant thunder. 6.55 P. Thunder cloſe and loud; heavy rain.

(m) Between 11 and 12 the ſtorm came on again heavier than before. 2 P. The air does not carry off perſpiration, and therefore leaves the body clammy. 8.50 P. At 7 we had a moſt furious ſtorm from N 8; a torrent of rain, but of ſhort duration; and all has been quiet this hour.

(n) After laſt obſervation, it began to rain ſmall rain, which continued ſome time.

(o) We had in town a very violent northweſter, and it reached the gardens, where it produced this rain. 1.11 P. The day has been hot, and the ſky covered with thin clouds; ſince 8 they have collected, and we had much lightning in the WNW. and now the ſtorm has reached us.

(p) Much lightning in the NNE. and diſtant thunder.

(q) It ſprinkled rain ſoon after laſt obſervation, but at 5 A. we had a tremendous thunder ſtorm.

Day.	Time.	Barometer.	Hygrometer.	Thermometer.		Clouds.		Wind.		Rain.	June 1785, Miscellaneous.
				In.	Out.	Kind.	Quant.	Quarter.	Force.		
1	7.10 A	29,570	47	84	86,5	thunder	5	SSW	3		(a)
	2.30 P	29,525	37	89	103,0			SSW	3		
	8.40 P	29,612	41	88,5	88	thunder	10	WNW	5		
	9.15 P	29,637	38	85,2	77	ditto	10	SS½W	4		
2	7. A	29,585	45	84	85	thick	8	S by E	3	,665	(b)
	2.20 P	29,590	42	84	88	thick	10	S by E	3		
3	6.40 A	29,565	46	82	83	thin	3	SE	3		
4										,168	(c)
5										,154	(d)
6	8. A	29,592	48	84	87	thick	6	ESE	2		(e)
	7.38 A	☽ New									
7	8.20 A	29,616	51	83	84,5	thunder	10	SSE	3	,100	(f)
8	8.20 A	29,621	52	83		thick	10	SE by S	4		
	2.20 P	29,580	48	83,5	88	thick	10	S by E	3	,503	(g)
9	8.40 A	29,657	47,5	80	77	thick looſe thun.	10	SSW	3	,700	(h)
	1 50 P	29,625	50	81	79,5	ditto	10	SSE	4	,469	
10	8.15 A	29,655	55	83	87	thick ſcat. looſe	5	S by E	4		
	2.15 P	29,617	52,5	83,5	86	ditto	10	S by W	4	,036	(i)
11	7.30 A	29,655	57,5	83	88,5	ſcattered	4	S by E	3	,056	(k)
	2.20 P	29,633	48,5	88	95	ſcattered	6	S by E	4		
12	7.30 A	29,653	53,0	84	87,5	looſe	7	S by E	4		
	2.23 P	29,580	45,0	86	96	looſe	5	S	4		
13	5.35 A	29,593	54	83	82	thin	5	S	2		
14	5.25 A	29,500	50	83	81,5	thin	5	S	2	,478	(l)
	2.28 A	☽ F. Q.									
15	7.25 A	29,420	51	83,5	82,5	thick and thin	9	NW	3	,006	(m)
	2.20 P	29,367	53	82,5	80,5	thick	10	NW	4	1,317	
16	7.40 A	29,472	52,5	80,5	78	thick looſe	10	WSW	3	1,700	(n)

Day.	Time.	Barometer.	Hygrometer.	Thermometer. In.	Thermometer. Out.	Clouds. Kind.	Clouds. Quant.	Wind. Quarter.	Wind. Force.	Rain.	June 1785, Miscellaneous.
16	2.15 P	29,450	53	83	87	thick	10	SW by S	3	,188	
17	6 15 A	29,504	55	80	78	thick	10	SW by S	3	,477	(o)
18	6 35 A									1,736	(p)
	8.15 A	29,630	55	79	75,8	thick loose	10	S by E	3	,200	
	2.15 P	29,581	55	82,5	85	thick	10	S by E	3	,150	
								Carried forward		10,104	

(a) There was a great deal of thunder last night. About 2 it was most oppressively sultry, being a dead calm. 8.40 P. After excessive lightning in the NW. the mass has reached us, and the storm is begun. 9.15 P. It still rains smartly; the thunder now approaches, but is very far off. This looks more like the rains than any thing we have yet had; and if wind veer to the south we may reasonably expect them.——(b) Produce of last night's storm.——(c) Produce of a thunder-storm at noon.——(d) Ditto, and at noon also.——(e) There was a storm at noon, and at dinner time, and the evening was fine.——(f) It has rained this morning with thunder: this water is yesterday's and to-day's.——(g) We had rain yesterday, and twice to-day, and this is the produce of all.——(h) It began to blow and thunder and lighten at 12.30, and before 1 A. we had a heavy shower. Ever since it has rained more or less, with much thunder. 1.50 P. It has rained without ceasing, more or less, ever since morning.——(i) We have had a thunder shower from SW.——(k) There was a shower at day-break.——(l) At 6 P. yesterday a heavy shower from NW gave this water: and there was only a sprinkling in town.——(m) There was a small shower about 3, and another about 9 P. 2.20 P. Heavy showers began about 9, and still continue with short intervals.——(n) It has rained ever since last observation; at times only sprinkling; at others smartly; and now moderately. 2.15 P. The rain abated gradually, and ceased before noon.——(o) At 9 P. a thunder storm from the W brought on rain again, and it continued till morning.——(p) It was running out through the air-hole. How long it had done so I cannot tell; but it rained all day yesterday; drizzling, and at times barely perceptible; heavily about 6 P. and drizzling till near day. Then hard again; and now it rains smartly, as it did when the water was measured: and there is some in the measure besides. 2.15 P. The rain ceased about 10, and the sun shone

Day.	Time.	Barometer.	Hygrometer.	Thermometer. In.	Thermometer. Out.	Clouds. Kind.	Clouds. Quant.	Wind. Quarter.	Wind. Force.	Rain.	June 1785, Miscellaneous.
						Brought forward,				10,104	
19	8. A	29,558	58	81,5	84,3	ſcattered	6	SSW	2	,375	(q)
	2.20 P	29,528	52	83	82,8	thick	10	W½N	2	,156	
20	8. A	29,567	50	81,5	84,5	thin and thick	7	SSW	3	,004	(r)
	2 10 I	29,520	50	81,3	84,5	ditto	6	S½E	4	,332	
21	7.35 A	29,549	53	80	78.5	looſe low thick	10	S½W	2	,132	(s)
	2.15 I	29,522	48	83	89,7	ſcattered	5	SW by S	4	,001	
22	7 25 A	29,552	53	81,5	81,5	thick	10	W	2	,007	(t)
	8.11 A	☽ Full									
	2.25 P	29,525	51,5	83	90,5	thick ſcat.	7	S by W	2		
23	8.50 A	29,539	55	82	79.5	looſe	10	NW	1	3,250	(v)
	2.20 I	29,521	56,5	82	82,8	looſe	10	S	3	,076	
	6.20 F	29,498	56			thick	10	S by E			
	6.55 I	29,516	56	83		thick looſe low	10	S by E			
24	6.20 A	29,510	58,5	81,5	81,5	thin	10	SE	3	1,778	(w)
	11.45 P	29,524	58	82	81	thick ſcat.	8	SE	3	,068	
25	7.20 A	29,512	59	83	84,5	thick	8	ESE	4		
	2 40 I	29,472	53	83	92,5	thick ſcat.	5	SSW	2		
26	7.35 A	29,508	56,5	83,5	83.5	thick	7	WNW	2	,073	(x)
	2. I	29,582	52,5	84	87	thick	9	SW	2		
	6.20 F	29,471	56	83	83.5	thick	5	SW by S	3	,507	
27	7.15 A	29,490	59.5	84	84,5	thick low	10	SSW½W	3		(y)
28	9. A	29,472	57	81,5	79,5	thick low looſe	10	SE	3	1,000	(z)
	2.15 I	29,428	58,5	83,5	87,5	thick low	10	SW by S	3	,367	
29	7.20 A	29,446	56,5	83	86	thick looſe gat.		S by W			(aa)
	2.25 I	29,406	51,5	85	91	thick	6	S by W½W	3		
	4.21 F	☽ L. Q.					9		3		
30	7. A	29,224	50,5	83	82	thick	8	S½W	3	,169	(bb)

Day.		Rain.	June 1785, Miſcellaneous.
30		,213	
		18,611	
		7,450	(cc)
	Total in June,	26,061	

(q) Between 10 and 11 P. there was a heavy ſhower, that produced 2 of this quantity; the reſt fell this morning. 2.20 P. A ſhower juſt over.—(r) This was the end of the laſt ſhower. 2.10 P. A heavy ſhower about 11 o'clock in the forenoon.

(s) Miſty rain. 2.15 P. It cleared ſoon after laſt obſervation.——(t) A ſhower about 4 o'clock this morning.

(v) About 1 it began to rain in torrents. At ½ paſt three 2 inches were meaſured; at 6½ this morning a third; the reſt fell ſince, and it ſtill ſprinkles. There was exceſſively heavy thunder, with moſt vivid lightning, at 3, though but little wind. 2.20 P. Drizzling rain all day. 6.55 P. A ſprinkling about 6.35. Diſtant thunder.——(w) Soon after laſt obſervation it began to drizzle, and the mercury roſe, but in a ſhort time after fell again. The rain continued till 1 in the morning, and for about two hours was very heavy. 11.45 P. This fell in the courſe of the day, about 9, and again 2 P.——(x) A ſmall ſhower at 7 P. yeſterday, and another juſt over. 2 P. A ſhower in the forenoon. 6.20 P. A ſhower about 5 P. and the above produced this water.——(y) The night was clear, and ſtars bright.——(z) It was very gloomy at 9, with much lightning. About midnight it began to rain; towards morning more, and at 6 A. heavily, and ever ſince ſmartly, and ſo it ſtill rains. 2.15 P. It rained till near noon, and is about to rain more.

(aa) The morning has been bright.——(bb) The rain fell about 8 P. laſt night in a ſmart ſhower from SW. wind 5. ,210. This rain fell about 6 P. and was heavy for the time it laſted.

(cc) Add this for the overflowing on the 10, 18, 23, and 24, when the garden was all under water.

Day.	Time.	Barometer.	Hygrometer.	Thermometer. In.	Thermometer. Out.	Clouds. Kind.	Clouds. Quant.	Wind. Quarter.	Wind. Force	Rain.	July 1785, Miscellaneous.
1	2.50 P	29,436	53	85	92	thick	4	E½N	3		
2	7. A	29,483	55,5	83	85	thick	6	E½N	4	,148	(a)
	0.10 P	29,510	47,5	83	84	thick looſe low	10	ESE	5		
3	9.20 A	29,512	55,5	83	84	thick looſe	6	E½N	6	,300	(b)
	2.20 P	29,480	55,5	83,3	85	ditto	7	S by E	4	,450	
4	8.12 P	29,556	54,5	82	84	thick	10	SW	4	,069	(c)
5	9.30 A	29,586	56,5	83	81,5	thick looſe	10	WNW	3	,900	(d)
	2.30 P	29,528	56	82	83	thick hard	10	SW by S	2	,017	
6	6.22 A	☽ New									
	7.10	29,486	57	81	78,5	thick looſe	10	NW	2	,923	(e)
	2.45 P	29,415	58	82	80,5	looſe	10	SW by S	3	,150	
	7. P					ditto	10	SW	7	,500	
7	6.40 A	29,440	58	81	78,7	looſe	9	SW½S	3	,359	(f)
9										,300	(g)
										,186	
	8. A	29,60	61	82	84	thin	6	SE	2		
10	7. A	29,654	62	82	83,5	thick thun. col.	5	S	4		
	0.15 P				94	ditto	7	S	4		
	2. P	29,610	62	83,5	88,7	thick thunder	8	SSE	4		(h)
11	7.30 A	29,662	59	83	88	thick ſcat.	8	S½E	2		(i)
12	2.30 P	29,556	56	83,5	90,7	thick	10	SW by S	3	,036	(k)
13	7.30 A	29,516	58	83	82	looſe	10	SW by S	2	1,500	(l)
	2.30 P	29,460	58	83	86	thick	10	SSW	3	1,223	
14	6.40 A	29,494	55	81,3	80,7	thick	10	S by W	3	,016	(m)
	7.28 A	☽ F. Q.									
						Carried forward,				7,077	

(a) The night very close and suffocating. After 3 in the morning, thunder and lightning, and a little wind with rain made it possible to sleep. 0.10 P. An heavy storm came on; the wind was NE. the greatest part of the forenoon, now has changed.

(b) It rained all the afternoon and till near 8 P. and about to rain again. 2.20 P. Flying showers, five or six since last observation.

(c) The produce of several drizzling flying showers after last observation.

(d) About 6 it began to rain, and there were ,400 at 9. It has rained almost all night, and there were ,500 drawn off just now; it still drizzles. The lightning fell close to the Bazar, that is about one-third of a mile from the house, but did not hurt any body.

(e) Rain in the night with lightning. Heavy rain about day-break, and the shower but just over. 2.45 P. Showers all the forenoon, and now set in. 7. P. It has been a very rainy, windy afternoon, and it still continues so.

(f) It has been tempestuous at times, and rained in flying showers all night.

(g) The 7th in the evening. ,186 The 8 to 2 P. when it ceased.

(h) It has thundered at a distance.

(i) There was lightning about 10 P. but not any rain.

(k) This rain fell yesterday about 4 P. It has not rained since.

(l) It rained heavily last night, about 11, and it has just begun again gently. 2.30 P. The rain continued till past 1.

(m) The rain fell in the evening about 6.

Day.	Time.	Barometer.	Hygrometer.	Thermometer. In.	Thermometer. Out.	Clouds. Kind.	Clouds. Quant.	Wind. Quarter.	Wind. Force.	Rain.	July 1785, Miscellaneous.
						Brought forward,				7,077	
15	8.40 P	29,660	58,5	83	87	thick	9	SSW	4	,072	(n)
16	2.40 P	29,586	54	85	91	thick	10	SW by W	3		
17	0.45 P	29,553	55	85	92	thick	7	SW by W	3	,184	(o)
18	2.20 P	29,442	54	83,3	85	thick	10	WSW	5	,340	(p)
19	7.20 A	29,468	57	81	78	thick loose	10	SW by W	3	,291	(q)
21	10.20 P	29,596	60	83	82,5	thin	5	S½E	3	,430	(r)
22	5.20 A	☽ Full									
	6.15 A	29,586	64	82	81	thick loose fog	9	S	2		
24	7. A	29,682	61	80,9	81	thick	9	E by N	4	,110	(s)
	2.20 P	29,650	55	84	90	thick	3	ENE	2	,014	
25	5.45 A	29,675	58,5	81	80	thick	3	SSE	2		
26	8.50 A	29 686	54	84	87,5	thick and thin	8	SSW	2		
	2.30 P	29,627	51	85,6	91,5	thick	9	SE by S	3		(t)
	8.25 P	29,636	54	84	80	thick	8	NW by N	2	1,700	
27	7.20 A	29,641	56,5	83	87	thick	5	S	1	0,007	(v)
	2.20 P	29,613	52,5	84	89,5	thunder	10	SE	4	,025	
28	6.30 A	29,612	58,5	82	84,5	loose	3	S by E	2		
	9.11 A	☽ L. Q.									
29	1.20 P	29,562	52.5	86	91,5	thick	8	ENE	3		
30	8.10 A	29.580	56,5	83,9	87	thick	9	SSE	2		
	2.40 P	29,512	51,5	86,5	93	thick	8	S by W	3		
31	7.15 A	29,528	56	82,3	80,7	thick	9	NE½E	3		
	2. P	29,370	58,5	80	79	thick	10	S	4	,226	(w)
										,016	(x)

	Rain.	July 1785, Miscellaneous.
	10,392	
Overflowing	1,700	(y)
	12,092	
Total in July,	12,192	

(r) This rain fell the 14th in the night, and not any ſince.
(o) Rain yeſterday evening, and in the night before three o'clock.
(p) A very tempeſtuous morning, and rain to-day alſo.
(q) Sprinkling rain.
(r) ,4 fell on the 19th, the reſt yeſterday. Not any to-day. The forenoon was foggy and cloudy, very cloſe and hot.
(s) This fell the day before yeſterday. 2.20 P. A thunder ſhower at 11. Exceſſive high tide to-day.
(t) A ſhower juſt come on. 8.25 P. Two very heavy ſhowers ſince 7. P. about which time it began with very heavy ınder from SE. and varied to NW.
(v) The remainder of laſt night's ſtorm, which was over when the laſt obſervation was entered. 2.20 P. A thunder ſhower ɔwer about 12, and it now thunders, and more is coming on.
(w) It rains hard. The wind has veered all round the compaſs at leaſt twice ſince morning, with flying ſhowers of ſmall rain, d diſtant thunder, of deep and heavy ſound.
(x) The wind increaſed to 8, and blew ſo for above an hour, with rain, of which this is the produce.
(y) And this for overflowing on the 26, and it could not be leſs.

Day.	Time.	Barometer.	Hygrometer.	Thermometer. In.	Thermometer. Out.	Clouds. Kind.	Clouds. Quant.	Wind. Quarter.	Wind. Force.	Rain.	August 1785, Miscellaneous.
1	6. A	29,490	60	81	79,3	thick	3	S by E	3		
2	6.10 A	29,515	62	81,7	81,3	thin and thick	4	SSW	2	0,005	(a)
	2. P	29,515	57	83,2	88,7	thick thunder	9	SE by S	3		
3	5.40 A	29,561	65	81,5	81,5	thin	2	S by E	2	,715	
	11. A										(b)
4	8. P	29,544	57	83	83	thick	5	SE by E	2		(c)
5	7.26 A	☽ New									
	11. P	29,578	60	82,2	80,9	thin	6	SE	2	,719	(d)
6	6.30 A	29,528	64,5	80,9	80,9	thick	9	E by N	2		
	11. P	29,588	62	82,3	80,3	thin	5	SW by S	2	,271	(e)
7	8.30 A	29,580	63	82,3	83	thick	10	W by N	2		
	2.15 P	29,520	61,5	83,7	90,2	thick	9	SSE½E	3	,066	(f)
	11. P	29,600	64	83,5	81	thick	10	S by W	2	1,000	
8	6. A	29,592	62	80,5	78,5	thick	10	S½W	2	,546	(g)
9	7.50 A	29,750	63,5	80	79	thick	10	SW	2		(h)
	0.50 P	29,735	64	80	86	thick hard	8	S	2	,293	
10	6.20 A	29,700	64,5	80,5	81	thick	3	S by E	2		
	1.15 P	29,66	58,5	84,3	90,3	thick thunder	6	SSW	3		
11	9. A	29,638	67,5	83	86,3	thick	5	SSW	3		
	2.15 P	29,574	61,5	86	92,5	thunder	7	S by W	3		
12	7.50 A	29,608	66,5	83,6	87,3	thick	8	S½E	2		
	2.15 P	29,564	56	86,5	91,5	thunder	10	S½W	2	,070	(i)
13	7. A	29,606	65	81,5	82,2	thick	9	WNW	3	,014	(k)
	11.24 A	☽ F. Q.									
	2.15 P	29,550	63,5	82,8	86,5	thick thunder	10	S by E	2	,400	
14	7.45 A	29,544	64	81,5	82	thick	10	NW	2	,196	(l)
	2.20 P	29,466	67	84,5	89,5	thick	8	E½N	1		
15	7.45 A	29,498	65	82,7	84	thick	6	SSE	3		

Day.	Time.	Barometer.	Hygrometer.	Thermometer. In.	Thermometer. Out.	Clouds. Kind.	Clouds. Quant.	Wind. Quarter.	Wind. Force.	Rain.	August 1785, Miscellaneous.
	7. P	29,468	61,5	83,5	86	thick thunder	10	E by N	2	,143	(m)
16	7.45 A	29,528	65	82,8	83,2	thick	5	NE½E	3		
	2.15 P	29,460	57,5	85	87,3	thunder	10	NNE	4		(n)
17	7. A	29,472	64	81	80,2	thick loose	10	NE	2	,475	(o)
	2.10 P	29,493	61,5	84,5	88,2	thick	8	SW by S	5	,025	
18	6.15 A	29,580	63	80,5	78,5	loose	10	S	3	,583	(p)
								Carried forward		5,521	

(a) About 1. P. it rained very heavily in town; and very little here; the quantity is noted. 2. P. Diſtant thunder.
(b) This fell in a very ſhort time. In town there was only a ſprinkling.
(c) It was very gloomy in town all the forenoon; and we had two ſmall ſhowers, but not any at the gardens.
(d) Of the water 5 fell laſt night, the reſt in the forenoon to-day.
(e) It rained almoſt the whole day ſmall rain.
(f) Rain in the forenoon. 11. P. And ſtill raining hard.
(g) It has rained almoſt inceſſantly all night long; and ſtill rains, though it is going off.
(h) It rains very heavily. The mercury is in a falling ſtate, ſo that it has been higher.
(i) This fell in the night about 15. P. and we have had a ſprinkling about 11 this forenoon beſides.
(k) This fell about 2 in the morning, with a guſt of wind and ſome lightning. 2.15 P. Two or three thunder ſhowers ſince 9, and it now thunders.
(l) Yeſterday afternoon and in the night it rained.
(m) 2 P. ſeveral ſmall ſhowers with thunder.
(n) 2.15. P. Thunder at a diſtance.
(o) Thunder ſhowers yeſterday afternoon, and in the night, and rain this morning. 2.10 P. Showers all the forenoon of very ſmall rain, and ſhort duration.
(p) It has been a very tempeſtuous night, with frequent ſhowers. It ſtill rains, and the wind was in general 6 and 7 in the night.

Day.	Time.	Barometer.	Hygrometer.	Thermometer. In.	Thermometer. Out.	Clouds. Kind.	Clouds. Quant.	Wind. Quarter.	Wind. Force.	Rain.	
						Brought forward,				5,521	
19	6.50 A	29,578	67	83	84	ſcattered	5	SSW	4	,142	(q)
	2.30 P	29,564	49	88	90,5	thick	5	SW by W	2		
20	7. A	29,580	63	83	85	thin	9	SW by S	3		
	1.41 P	☽ Full									
	2.20 P	29,566	40	90	93	thick	4	SW by W	4		
21	6.10 A	29,576	54	83	80	ditto	5	N	1		
	1. P	29,625	52,5	85	85	thunder	10	NE by E	3		(r)
	2.15 P	29,578	54	84	83	ditto	10	ESE	2	,015	
22	6. A	29,588	58	83	81	thick	9	W by N	1		
	2.15 P	29,556	54	85	90	ditto	8	NE by N	4	,05	(s)
23	6.30 A	29,570	61	83	81	thick thunder	9	N	1	,248	(t)
	2.15 P	29,576	59	83,5	86,8	thick	8	S½E	5	,053	
24	7. A	29,596	60	82	82	ditto	7	E by S	3	,030	
	2.15 P	29,598	59,5	84	86	thunder	9	S by E	3	,084	(v)
25	6.30 A	29,646	62	82,5	81,5	thick and thin	9	S by E	2		
	2.15 P	29,640	55	85	86,5	thick	9	SSW	2		
26	7. A	29,690	61	82,8	83	thin	9	ESE	2		
	2.15 P	29,642	58	84	81,9	thunder	9	S½E	2	,186	
27	4.03 A	☽ L. Q.									
	6.15 A	29,700	61	82,5	80	thin and thick	7	SSE	3	,017	(w)
	2.25 P	29,688	57,5	84,5	88,9	thick	9	S by E	3	,004	
28	7. A	29,758	61	82,0	80,9	looſe	10	SE by E	2	,200	(x)
29	7. A	29,696	61	81,8	81,8	thick	6	S by E	2	,214	(y)
30	7.10 A	29,704	63	83	83,2	thin	10	SW by S	2	,055	(z)
	2.35 P	29,628	58	85,4	88,5	thunder	9	S by W	2		
31	5 30 A	29,610	61	82	80,7	thick looſe	10	WNW	1		

Day.	Time.	Barometer.	Hygrometer.	Thermometer. In.	Thermometer. Out.	Clouds. Kind.	Clouds. Quant.	Wind. Quarter.	Wind. Force.	Rain.	August 1785, Miscellaneous.
31	2.25 P	29,600	63	82,5	81	thunder loose	10	WSW	2	1,707	(aa)
								Overflow.		1,700	(bb)
	7. P									,338	(cc)
								Total in August,		10,661	

(q) Rain about noon yesterday, and after it; and the conclusion of the shower yesterday morning.
(r) 1. P. Thunder at a distance; sprinkling rain began. 2.15 P. Thunder over.
(s) 2.15 P. Rain about 8 A.
(t) Thunder showers since last observation. 2.15 P. Several showers of short duration since last observation. Tides high.
(v) 2.15 P. Several small showers with thunder.
(w) Rain with thunder yesterday afternoon. 2.25 P. A small shower just over.
(x) Rain now falling, and some fell in the afternoon yesterday.
(y) Rain yesterday before sun-set.
(z) Rain in the night. 2.35 P. It has thundered this forenoon; and being then dead calm, the heat was almost insupportable. 2.25 P. The gage cistern holds only that quantity; how much fell I know not, but I think as much more.
(aa) The water measured to-day fell in about an hour. To-day I measured the cistern, and it holds only 1,707; and through the air-hole there runs out one-tenth in 40". It is impossible, therefore, to ascertain what did fall to-day; but that it had run out was evident; and from circumstances I judge the quantity was as much as was measured.
(bb) Add 1,700, it could not be less, as there was a great deal of water in the garden: and besides, I know from a canal that its water rose 3.4. Yesterday it was 1.5 below the drain; this afternoon the water ran through the drain two inches deep, and yet only three-tenths of rain fell in the afternoon.
(cc) This fell in the afternoon.

Day.	Time.	Barometer.	Hygrometer.	Thermometer. In.	Thermometer. Out.	Clouds. Kind.	Clouds. Quant.	Wind. Quarter.	Wind. Force.	Rain.	September 1785, Miscellaneous.
1	5.30 A	29,60	68	81,5	80	thick	5	S by W	2		
2	7.40 A	29,70	66,5	82	82,5	thick	5	S	3	,052	(a)
	2.30 P	29,67	68	83,5	85	thick	10	SSE	3	,156	
3	5.30 A	29,712	71	81,5	79,9	thick	3	SSE	1		
	2.20 P	29,700	65	83	86	thick	6	S by W½W	3		
	10.51 P	☽ New									
4	6. A	29,748	69	82	79,9	thin	5	S by W	1		
	2.20 P	29,730	5,05	85	92	thick	6	S by W	2		
6	6.15 A	29,772	55,5	83,5	82	thick ſcat.	6	SSW	2		
	2.25 P	29,734	46,5	88	91	thunder	7	SW by W	4		(b)
7	5.40 A	29,720	55	84	82,2	thin and thick	6	SSW	3		
	2 30 P	29,714	45	87,5	89	thunder	9	SSW	3		(c)
8	5.40 A	29,716	55	84	81	thin	3	S by W	2		(d)
9	5.40 A	29,740	55	83	82	thin	3	S½W	1		
	2.10 P	29,730	45	87,5	92	thunder	5	SW by W	2		(e)
10	7.30 A	29,820	54	84,8	85	thin and thick	6	S by E	2		(f)
	2.25 P	29,784	48	88	92	thunder	9	SSW	3		
11	7. A	29,782	5,55	83	81,5	thick	9	N by E½N	2		
	2. P	29,754	50,5	86	88,5	thunder	10	SW by S	3		(g)
12	1.55 A	☽ F. Q.									
	6.10 A	29,720	55	83,5	80,2	thunder	6	SW½S	2	,582	(h)
	2.10 P	29,668	53,5	86	92	thick	9	S	2	,185	
13	5.55 A	29,650	57	84	82	ditto	7	S by W	2		(i)
	1.20 P	29,592	55	87	93	thick heavy	9	SSE	2		
14	7.10 A	29,655	56,5	83,3	81,9	foggy	10	ESE	2	,010	(k)
	2.10 P	29,608	52	86	89,5	thunder	8	SE by S	4	,002	
15	5.50 A	29,600	56,5	82	80	looſe	7	E by N	3	,001	(l)
16	7.15 A	29,648	56,5	82	81	thin	4	E by S½S	3	,128	(m)

Day.	Time.	Barometer.	Hygrometer.	Thermometer. In.	Thermometer. Out.	Clouds. Kind.	Clouds. Quant.	Wind. Quarter.	Wind. Force.	Rain.	September 1785. Miſcellaneous.
16	2. P	29,616	54	84	86	thunder	5	E½S	2	,590	
	8 40 P	29,659		83	82	thin.	5	SE by E	3	,110	
17	6. A	29,630	59	82	80	thin	9	SE by E	2	,003	(n)
	2,25 P	29,628	54	85	82,5	thick	10	E by N½N	1	,001	
								Carried forward,		1,820	

(a) A ſhower about 1 in the morning, with violent wind. 2.30 P. A ſhower about 10.
(b) Diſtant thunder.
(c) 2.30 P. We had a ſprinkling of rain at 11, and ſome thunder ſince.
(d) Yeſterday it rained hard at Dumdum, and to-day there was a very ſmart ſhower in Calcutta; only a ſprinkling here.
(e) 2.10 P. Diſtant thunder, but approaching from the SW to SSE.
(f) About and until ſun-ſet we had a double rainbow, but the rain was only in ſcattered drops.
(g) 2 P. Loud thunder in the NE.
(h) At ½ paſt 4 we had heavy rain from the SW. with lightning. 2.10 P. Rain about 9 o'clock.
(i) A ſprinkling juſt over.
(k) We had a great deal of thunder laſt night, ſprinkling rain and dead calm till day-break. 2.10 P. We had two or three ſprinklings, and ſome thunder.
(l) A ſprinkling in the afternoon about 3 P.
(m) This water fell yeſterday, and it did not rain in town. 2 P. At ½ paſt 12 a very heavy ſhower gave this water in leſs than 20 from SE 5. 8.40 P. This water fell about ſun-ſet, from which time the ſky began to clear.
(n) This fell in the night. 2.25 P. A ſprinkling in the forenoon.

Day.	Time.	Barometer.	Hygrometer.	Thermometer. In.	Thermometer. Out.	Clouds. Kind.	Clouds. Quant.	Wind. Quarter.	Wind. Force.	Rain.	September 1785. Miscellaneous.
						Brought forward,				1,820	
18	6. A	29,648	58	81	80,5	loose	8	E by N½N	2		
	7. A	29,664	58	81	80	ditto	10	ditto	2		(o)
	2.20 P	29,613	56	84	85	ditto	10	S by E	3	,056	
	9.57 P	☽ Full									
19	6. A	29,590	59	81	80	thick loose	10	E by S	2	,003	(p)
	2.15 P	29,588	61	83	87,2	thick heavy	10	S by W	2	,002	
20	6. A	29,580	62	81	80	thick loose	10	SE	2	,281	(q)
	2. P	29,576	59	84,5	89	thick	8	S by E	3	,163	
21	7.50 A	29,687	61	81	81,5	thick	9	E by S	4	,387	(r)
	2.25 P	29,666	60,5	84,3	87	thick	10	SE by S	4	,084	
22	6. A	29,754	62	81	79,8	thick	3	E by N	4	,016	(s)
23	7. A	29,756	62	80	80,8	thin	4	NE	1	,270	
	1.30 P	29,728	58	84,7	88,8	thick	6	NW	1		(t)
24	8.15 A	29,723	62	83	84,5	thick	9	NW	3		
	2.15 P	29,636	55	86	89,5	thick	8	NNW	3		
25	8.50 A	29,668	58	83	84	thick	5	E by S	4		(v)
	2.15 P	29,583	53	84,3	86	thick	7	ESE	4	,154	
	2.21 P	☽ L. Q.									
26	8. A	29,666	58	80,8	81,2	thick loose	5	ENE	3	,395	(w)
	2. P	29,608	58	82	84	thick	9	SSE varying to S by W	5	,291	
27	7.45 A	29,641	61	81	81,8	thin	5	SE	3	,018	(x)
	2.25 P	29,573	59	82	81	thick	10	SW	3	,130	
28	7.20 A	29,600	60	81	81	ditto	9	SE by S	5	,130	(y)
	2.15 P	29,556	62	83	85,5	ditto	10	SSE	5	,009	
29	6.30 A	29,638	63	81	79,5	ditto	10	S by E	2	2,640	(z)

Day.	Time.	Barometer.	Hygrometer.	Thermometer.		Clouds.		Wind.		Rain.	September 1785, Miſcellaneous.
				In.	Out.	Kind.	Quant.	Quarter.	Force.		
30	6.30 A 12. P	29,680	61	78,2	79,9	thick hard	4	SW½W	3	,182 ,001	(aa)
								Total in September,		7,052	

(o) 7 A. A ſmall rain. 2.20 P. Rain in the forenoon, ſeveral ſmall ſhowers.

(p) This fell yeſterday before ſun-ſet. 2.15 P. Rain in a ſhort ſprinkling this forenoon.

(q) Rain yeſterday evening, and in the night; it ſtill rains ſcattered large drops. 2 P. Rain in the forenoon.

(r) Rain with thunder at 5 P. again in the night twice, and ſince day alſo. 2.25 P. Two or three ſhowers ſince laſt obſervation.

(s) Rain the afternoon yeſterday. Rain twice to-day.

(t) 1.30 P. The wind has varied round and round, though hardly perceptible.

(v) The night was dead calm till about an hour before dawn, and then we had a ſtorm from NE with lightning. 2.15 P. A ſhower juſt over.

(w) Rain at 4 A. and again at ſun-riſe. 2 P. Flying ſhowers all the forenoon.

(x) Rain yeſterday afternoon. 2.25 P. Several ſmart ſhowers ſince laſt obſervation.

(y) A very ſtormy night, with frequent ſhowers. 2.15 P. Two or three ſhowers ſince morning, but all momentary, and ſmall.

(z) Before 11 o'clock P. we had rain 15. Between 12 and 1 there came on a violent rain, attended with thunder, lightning, and wind, which varied round and round: it produced 1,25: before 3 1,20, and the reſt ſince. It ſtill lowers and threatens.

(aa) Several ſhowers yeſterday, and one in the night. 12 P. A ſprinkling to-day.

Day.	Time.	Barometer.	Hygrometer.	Thermometer. In.	Thermometer. Out.	Clouds. Kind.	Clouds. Quant.	Wind. Quarter.	Wind. Force.	Rain.	October 1785, Miscellaneous.
1	8. A	29,826	58,5	81,2	81,5	thin	4	WNW	2		
	2.10 P	29,770	50	84	87,5	ditto	2	W by S	3		
2	7.45 A	29,840	56,5	80,5	80,5			SW½S	2		
	2.20 P	29,797	37	83	86			WNW	3		
3	6.15 A	29,790	53	80,5	82	thin	7	SW by S	2		
	3.54 P	☽ New									
	5.30 P	29,764	46	84	84,5	thunder	5	WNW	3		(a)
4	7.15 A	29,845	54	81	80	thick scat.	4	NW	2		
	2.20 P	29,824	49	84,3	87,3	thick	6	WNW	2		(b)
5	7.30 A	29,875	54	82	81,5	thin	2	SE by S			
	2.15 P	29,833	43	86	90,5	thick	6	SSW	2		
6	6.50 A	29,910	52	82	79	thin	1	S	1		
7	6. A				78,5						
	7.40 A	29,872	51	82	81,5			SW			
	2.30 P	29,790	45	86	89,5	thick	6	WNW	2		
8	7.15 A	29,858	50	81	78	thunder	8	E½N	1	,331	(c)
	2.30 P	29,773	45	85	88,5	thick thunder	8	NE	2		
9	6. A	29,86	52	80,5	78	thick	3	NE	2	,335	(d)
	2.25 P	29,799	50	81,7	87,5	thunder	9	S by E	3	,268	
	10.30 P									,455	
10	5.35 A	29,873	55	78,2	75,5	thick	4	ENE	2	,002	(e)
11	6.15 A	29,907	56	80,5	78,6	thick scattered	7	E	2		
	2.20 P	29,863	52	84	88,5	thick	6	NNE	3		
	2.46 P	☽ F. Q.									

Day.	Time.	Barometer.	Hygrometer.	Thermometer. In.	Thermometer. Out.	Clouds. Kind.	Clouds. Quant.	Wind. Quarter.	Wind. Force.	Rain.	October 1785. Miscellaneous.
12	7.15 A	29,902	55	81,2	81	thin	2	W½N	1		(f)
	2.15 P	29,868	47	84,3	87,5	thick	6	NW	1		
13	6.30 A	29,900	53	81,5	79	thin	2	NW½W	2		
14	7. A	29,894	53	81,5	80			W by S	2		
	2.20 P	29,848	46	84	88,9	thick	8	WNW	2		
15	7. A	29,892	53	82	79,9	thunder	3	NW by W	2		(g)
	2.15 P	29,878	45	86	89	thick thunder	6	NW½N	3		
16	6.45 A	29,848	52	81,5	80	thin	4	N	2		
	2.25 P	29,897	46	86	88,5	thick	6	N	3		
								Carried forward,		1,391	

(a) 5.30 P. Rain in the north.
(b) 2.20 P. Very ſultry.
(c) There was much lightning in the north, with diſtant thunder, and at 4 we had a thunder ſhower.
(d) A thunder ſhower about ſun-ſet. 2.25 P. Rain began at 3, and continued till near 9: it came from the NE. with a very ſudden change.
(e) Whether this was rain or dew I do not know.
(f) At 6.30 A. The thermometer out of doors 78,7.
(g) Thunder at a diſtance twice this morning.

Day.	Time.	Barometer.	Hygrometer.	Thermometer. In.	Thermometer. Out.	Clouds. Kind.	Clouds. Quant.	Wind. Quarter.	Wind. Force.	Rain.	October 1785, Miscellaneous.
						Brought forward,				1,391	
17	6.20 A	29,928	50	80,7	78,2			N by E½E	2		
	2.5 P	29,885	42,5	85	86,5			N	4		(h)
18	6.46 A	☽ Full									
	6.50 A	29,914		79				N	1		(i)
	2.30 P	29,878		86				N	3		
19	6.30 A	29,872		79				NNE	2		
	2.30 P	29,856		86				N	1		
20	7.30 A	29,900		80		thick	10	N	2		(k)
	2. P	29,832		86		thin	5	N	2		
21	8. A	29,92		81,7		ditto	3	N Eaſtly	3		
	2.30 P	29,864		87,5		thick and ſcat.	5	N	4		
22	6.20 A	29,884		78				N	3		
	2.40 P	29,828		87				NNE	4		
23	6.20 A	29,892		77,5		thin	4	N	3		
	2. P	29,864		87		thin	3	NE	3		
24	7.10 A	29,936		79,5		thin	6	NNE	2		
	2. P	29,903		85,5		thin	4	NNE	2		
25	4.45 A	☽ L. Q.									
	6.30	29,913		78,5		thin	4	NE	9		
	2.10 P	29,900		88		thick ſcat.	3	N	2		
26	6.40 A	29,874		80,5		thick and thin	4	NE	2		(l)
	1. P	29,860		88		thunder	8	SE	1		
	1.25 P	29,866		86		ditto	9	SE	4		
	1.40 P					ditto	10	SE	6		
27	7. A	29,840		78,5		thick looſe	10	NNE	1	,920	(m)
	2. P	29,780		83		thick	10	NE	2	,456	
28	7. A	29,724		77		looſe foggy	9	NNE	3		

Day.		Rain.	Oct. 1785. Miscellaneous.
30		,084	(n)
31		,012	(o)
	Total in October,	2,863	

(h) 2.5 P. Quitted the gardens this evening.
(i) First observation at Calcutta.
(k) The clouds began to collect yesterday about 9 A.
(l) Foggy. 1 P. Distant thunder. 1.25 P. Ditto, and rain coming on. 1.40 P. Rain began in large drops.
(m) The rain fell heavily, and continued till about 3, and produced the water above at the gardens. It has rained in the night, and I heard it at day-break, and it drizzles now. 2 P. Smart rain. This water was measured in the morning.
(n) Rain at day-break.
(o) Rain at noon.

Day.	Time.	Barometer.	Hygrometer.	Thermometer. In.	Thermometer. Out.	Clouds. Kind.	Clouds. Quant.	Wind. Quarter.	Wind. Force.	Rain.	November 1785. Miscellaneous.
2	7.15 A	29,947		80		thick	4	N	1		
	9.33 A	☽ New									
	2.21 P	29,912		85,5		thick	8	ESE	3		
3	8.30 A	29,964		80				N	2	,003	(a)
4	8.15 A	29,936		79,3		thick	6	NE	3		
	2.30 P	29,840		81,7		thick	8	E	3		
5	9. A	29,924		78,3		thick	10	N	3	,001	(b)
	2.20 P	29,802		82,3		thick	9	N	2		
6	6.40 A	29,850		78		thick	8	E	1	,019	(c)
	2.20 P	29,820		81,8		thick	10	NE	1		
7	7.40 A	29,914		78,3		ſtudded	6	N	2		
	2.15 P	29,900		83		thick	8	NNE	2		
8	7. A	29,932		78,8		thick	10	NE	1		(d)
	2.10 P	29,881		79,5		thick	10	NE	3		
9	7. A	29,940		74,3		thick	9	N	2	1,000	
	2.10 P	29,896		77		thick	8	NNE	3		(e)
10	1.43 A	☽ F. Q.									
	7.40 A	29,936		73		none		N	2		
	2. P	29,936		77,8		white ſcat.	3	NW	2		
11	7. A	30,022		74				N	2		(f)
	2. P	29,988		80		thick white ſcat.	6	NW	2		
12	8. A	30,118		75		thick	3	NNE	2		
	2.30 P	30,036		79,3		thick	4	NNE	2		
13	8. A	30,118		74,3		thick	3	N	3		
	2. P	30,062		79		ſcattered	3	N	4		
14	7. A	30,082		71				N	3		

Day.	Time.	Barometer.	Hygrometer.	Thermometer. In.	Thermometer. Out.	Clouds. Kind.	Clouds. Quant.	Wind. Quarter.	Wind. Force.	Rain.	November 1785 Miscellaneous.
14	2.25 P	30,024		78				NNW	3		
15	7.35 A	30,005		70,5				NW	3		
								Carried forward		1,023	

(a) A ſmall ſhower at the gardens.

(b) Small rain: the produce at the gardens.

(c) It rained laſt night, and the water was meaſured this morning at the gardens. 2. 20 P. At noon there was a ſmart ſhower of rain.

(d) Very gloomy, and about to rain. 2.10 P. It began to rain about 8 o'clock, and it continued till near 2. The ſky begins to brighten a little.

(e) Yeſterday at 3 P. it began to rain, and about 4 P. to blow, and the wind increaſed to great violence from the N. and NE. About 7 P. a blaſt broke the pipe of the water-gage, at which time there was 0,5 in the ciſtern; and the quantity that fell afterwards was eſtimated at 0,5. The rain was heavy at times, and continued till 1 the next morning.

(f) Thick fog going off.

Day.	Time.	Barometer.	Hygrometer.	Thermometer. In.	Thermometer. Out.	Clouds. Kind.	Clouds. Quant.	Wind. Quarter.	Wind. Force.	Rain.	
						Brought forward,				1,023	
16	6.10 A	29,944		69,7							
	4.40 P	) Full						NW	2		
17	7.30 A	29,960		71,3	72,3			NW	2		(g)
	2.20 P	29,96		78,3				N	2		
18	7.45 A	30,036		72,5		thin	3	E	2		(h)
	2.15 P	30,013		78		ſcattered	4	WNW	2		
19	7.20 A	30,073		72		thick and thin	7	W	2		
	2.10 P	30,023		78,5		thin	4	WNW	3		
20	2.15 P	30,040		77,7		thin	3	NW	3		(i)
21	7.20 A	30,072		71,3		thick	9	N	2		(k)
	2.10 P	30,020		78		thick	6	E	2		
22	6.40 A	30,038		71,5		thick	9	ENE	4		(l)
	1.50 P	30,020		78		ſcattered	7	ENE	3		
23	7. A	29,986		72	67	thin	3	N	2		
	11.06 P	) L. Q.									
24	8. A	29,976		73		thick	10	NE	3		
25	2. P	29,920		79,5		thin	6	N	2		
28	7.30 A	29,942		72		thin	4	N	3		
	6.20 A				59,7			N	4		(m)
	7.10 A	30,050		66,2	59,3	thin, a ſtripe in the eaſt		N	4		
	2. P	30,000		73		none		N	3		
29	7.25 A	30,022		66,5	58	none		N	3		(n)
	7.10 P	29,963		75,5				N	3		

Day.	Time.	Barometer.	Hygrometer.	Thermometer.		Clouds.		Wind.		Rain.	November 1785 Miscellaneous.
				In.	Out.	Kind.	Quant.	Quarter.	Force.		
30	6.40 A	29,977		66	59			N	3		
	2.30 P	29,940		77,3				NNW	3		
								Total in November,		1,023	

(g) The thermometer was in the ſun.
(h) Thin fog.
(i) This morning was very cold, but I did not obſerve.
(k) It rained about 3 in the morning.
(l) Very ſharp wind abroad.
(m) One very ſmall cloud. 7.10 A. Foul ſky in the Weſt. 2 P. Not a ſingle cloud to be ſeen; the ſmall ſtripe went off before 8, and the whole day has been delightfully pleaſant.
(n) Yeſterday ended as delightful as it was at noon; and to-day promiſes to be juſt as fair and pleaſant.

Day.	Time.	Barometer.	Hygrometer.	Thermometer. In.	Thermometer. Out.	Clouds. Kind.	Clouds. Quant.	Wind. Quarter.	Wind. Force.	Rain.	December 1785, Miscellaneous.
1	6.45 A	29,988		66,5	61	thin	2	W	2		
	2. P	29,976		78,2		scattered	3	NW	2		
2	3.42 A	☽ New									
	7.15 A	29,956		67	62	thick & thin scat.	5	W	2		
	2. P	29,944		77,5				WNW	4		
3	7. A	30,00		69	64	thin	4	WNW	2		
	2.20 P	29,86		77		thin	4	N	2		
4	7. A	30,032		66,4	59			N	2		
5	7.			65				N	2		(a)
	2. P				74			WNW	2		
6	7.10 A	29,070		68				WSW	2		(b)
7	7. A				67,5			WSW	3		(c)
8	6.40 A				68			WNW	2		
9	6.30 A				52						(d)
	10.46 A	☽ F. Q.									
	2.20 P	30,044		79,5	77,5			WNW	3		
10	6.30 A	29,966		57	51						(e)
15	11. P	30,060		58							
16	4.30 A	☽ Full									
	6. A	30,050		53	48,5			NNW	3		
	2. P	30,040		76,3	74,8			W	1		
17	6. A	29,977		62	53	thick	8				(f)
	2. P			67	73	thick	5	NW	2		
18	6. A			62		thin	5	NW	2		
19	6. A	29,963		67	52	thin	5	N	2		
	2. P	29,944		78	78	thin	6	N	3		
20	2.20 P	29,976		77	78	thin and thick	6	ENE	3		(g)
21	7. A	30,00		58	53	thick	4	E	3		

Day.	Time.	Barometer.	Hygrometer.	Thermometer. In.	Thermometer. Out.	Cloudt. Kind.	Cloudt. Quant.	Wind. Quarter.	Wind. Force.	Rain.	December 1785, Miscellaneous.
	2. P	29,944		78,5	77,5	thick	8	NE	2		
22	6.30 A	30,012		57,8	53			N	2		
	1. P	30,025		79,5	76	thick	9	N	3		
23	7.20 A	30,003	45	64,5	61	none		NNE	2		
	2.35 P	29,965		72	75			NNW	2		(i)
	8.01 P	D L. Q									
24	7. A	30,024	43	67	60			NW by N	3		
25	6.04 A				59,5			NNE	3		
26	6.30 A				55			NW	2		
27	6.30 A				55			WNW	2		
	2.30 P	29,934			73			WNW	3		
29	8. A	30,888		69	59			NW by W	2		
	2.40 P	30,002		71,2	74,7			WNW	3		
31	6.31 P	D New									

(a) At Purree Baugh.
(b) Foggy.
(c) Foggy.
(d) At Dum Dum in tents; thermometer wet with the dew.
(e) Very thick fog.
(f) Laſt night the wind was South of the Weſt. At the gardens.
(g) In the morning it was E. 4.
(h) Exceſſive fog, but going off.
(i) At the gardens.

Day.	Time.	Barometer.	Hygrometer.	Thermometer. In.	Thermometer. Out.	Clouds. Kind.	Clouds. Quant.	Wind. Quarter.	Wind. Force.	Rain.	January 1786, Miscellaneous.
1	7. A	30,128		72,5	60			WNW	2		
3	8. A	30,116		70	63,5			W½S	2		(a)
4	8. A	30,114		69,7	62,5	thin	5	W by N	2		
	1.10 P	30,064		71,5	74	thin	6	WNW	2		
5	8.15 A	30,144		69,5	66,5	thin	2	NW	3		
6	8. A	30,212		69	61			N	3		
	2.30 P	30,172		75,5	75			N½W	4		
7	8.10 A	30,248		68,5	59			NNW	3		
	6.37 P	☽ F. Q.									
11	2. P	30,042		69,5	73,5			N	3		(b)
12	9. A	30,107		64	61	thin	2	NW	3		
	3. P	30,004		72	73	thick	3	NW by N	2		
13	8.30 A	30,078		59,5	66,5	none		NW	3		
	2.15 P	29,998		69	73			WNW	2		
14	8. A	30,124		67,6	57			NW	3		
	2.15 P	30,074		70	72,5			WNW	3		
	6.30 P	☽ Full									
15	7.30 A	30,124		66	56,5			NW½N	3		
	2.30 P	30,050		70,5	72,3			NW by N	3		
16	6. A				52			NW	3		(c)
	2.20 P				78			NW	3		
17	6. A				50			NWN	3		
	2. P				79			NW	3		
18	6. A				49			NW	0		(d)
19	7. A	30,040		66,5	56,5			NW	2		(e)
	2.20 P				82			WNW	4		
20	6.30 A				50			W	4		
	2 P				80			W	4		

Day.	Time.	Barometer.	Hygrometer.	Thermometer. In.	Thermometer. Out.	Clouds. Kind.	Clouds. Quant.	Wind. Quarter.	Wind. Force.	Rain.	January 1786. Miscellaneous.
22	5.42 P	☽ L. Q.									
23	6. A				47			N	3		(f)
24	6. A				50			ENE	2		
25	6. A				60			S	2		
26	7. A				68			NW	2		
	2. P				84						
27	8. A				64						
	2. P				87			W	1		
29	7.45 A				65			NE	3		(g)
	2.50 P				85			NNE	3		
30	8.00 A	☽ New									
	8.32 A				64	thick scattered	4	WSW	1		(h)
	2.35 P				83			NNE	4		

(a) A fog so thick hardly any thing is visible.
(b) To-day at day-break it was 52 at Dum Dum.
(c) Foggy, and piercing by cold.
(d) Fog, and thermometer wet: the air mild to the feeling.
(e) Foggy.
(f) Thermometer wet with dew.
(g) Thermometer wet with dew.
(h) Sun eclipsed, going off.

Day.	Time.	Barometer.	Hygrometer.	Thermometer. In.	Thermometer. Out.	Clouds. Kind.	Clouds. Quant.	Wind. Quarter.	Wind. Force.	Rain.	February 1786, Miscellaneous.
1	7.15 A	29.994		72,3	67			SW	2		(a)
2	6.50 A	29.927		69,5	66	thick	3	SSW	3		(b)
3	7.45 A	30,036		67,5	63,5			N by W	3		
	2.30 P	30,009		76	75			NW	4		
4	6.[illegible] A	30.047		67	55			WNW	3		
	2.[illegible] P	30.060		77	75			NW by W	4		
6	2.22 A	☽ F. Q.									
	6.40 A	30.100		67	58,5			W	3		
	2.50 P	30,078		78	77			NW	4		
7	7.00 A	30,078		66	57,5			NW½N	3		
	3.30 P	30,020		73	77,5			NW½N	3		
8	7.15 A	30,068		66	59			NW½N	3		
10	6.50 A	30,084		68	58			WNW	3		
	2.40 P	30,087		79	79,3			W by N	3		
11	6.50 A	30,094		69	59			W by N	3		(c)
	2.30 P	30,026		71	80,7			E½S	3		
12	7.50 A	30,00		69,3	65,5			N	2		
13	7.30 A	30,00		73,2	68,3			SW by S	2		(d)
	10.35 A	☽ Full									
	2. P	29,956		850,	81,3			SW	2		
14	5.50 A	29,970		71,5	66			S½E	2		(e)
15	1.40 P				86	thick	6	S	4		(f)
16	7. A				64	thick	3	ESE	2		(g)
	2.10 P	29,914		76	79,5	thunder	10	SSW	2		
	6. P									,1600	
17	7.50 A	29,952		70,3	64,3	thick	10	SE	5	,4200	(h)
18	7.40 A	29,992		65,5	61,3	thick scat.	5	NNE	3	,1750	(i)
19	8.10 A	30,02		65	65			WNW	4		

Day.	Time.	Barometer.	Hygrometer.	Thermometer. In.	Thermometer. Out.	Clouds. Kind.	Clouds. Quant.	Wind. Quarter.	Wind. Force.	Rain.	February, 1786, Miscellaneous.
21	7.40 A	29,892		69	65,4			SW½S	3		
	2.11 P	☽ L. Q.									
22	6. P	29,882		77	77	thick thunder	7	S	3		(k)
23	8. A	29,970		74	75	thick	10	SSW	3		(l)
24	2,30 P	29,982		76	80,8	thick	6	NW	3	,1810	(m)
25	8. A	30,062		74	73,5			S by E	2		
	2,30 P	30,000		78	82	thick	4	ENE½N	2		
26	7.15 A	30,076		73	9,3	thick	10	NNW	2		(n)
	2,30 P	30,066		78,5	80,5	thick	10	W by E	3		
27	.10 A	30,095		72,5	70,3	thick	10	NW	2		
28	2.20 P	30,058		77	85	thunder	6	W	2		(o)
	8.20 P	☽ New									
								Total in February,		,9360	

(a) Excessive fog.——(b) Thick fog rising into clouds.——(c) Foggy.——(d) Excessive fog.——(e) Excessive fog. (f) The clouds have been thick 9, and it looked as if it was about to rain.——(g) Foggy, at Dum Dum. 2.10 P. (At the garden.) thunder coming on, and drawing near. 6 P. Rain had began in drops when last observation was made.——There was thunder, but not any thunder gust.——(h) It has been a very tempestuous night, with excessively heavy thunder, and of very long continuance; the thunder shook the whole house several times.——(i) This fell in the last night.——(k) The wind has been S. 6 the greatest part of the day.——(l) It lightened a good deal till 8 P. and then cleared suddenly.——(m) This water fell in a thunder shower last night, from W and NW. with much lightning, though but little wind.——(n) Much lightning in the former part of the night, and a gust of wind from N about 11.——(o) Very heavy fog this morning, and a mass forming.

DIRECTIONS TO THE BINDER.

The Prints, which are not already paged, muſt be placed in the following order.

PLATE I. Fronting Page - - - - - - 1
——— II. - - - - - - - - - - - - 13
——— III. - - - - - - - - - - - - 14
——— IV. - - - - - - - - - - - - 33
——— V. - - - - - - - - - - - - 40
——— VI. - - - - - - - - - - - - 54
——— VII. - - - - - - - - - - - - 45
GANESA - - - - - - - - - - - - - 226
INDRA - - - - - - - - - - - - - 241
BRAHMA - - - - - - - - - - - - - 243
VISHNU - - - - - - - - - - - - - 244
CUVERA - - - - - - - - - - - - - 247
ISWARA - - - - - - - - - - - - - 249
VARUNA - - - - - - - - - - - - - 251
CARTICEYA - - - - - - - - - - - - 252
CAMA - - - - - - - - - - - - - - 255
GANGA - - - - - - - - - - - - - 256
CRISHNA - - - - - - - - - - - - - 259
RAMA - - - - - - - - - - - - - - 260
SURYA - - - - - - - - - - - - - - 262
NAREDA - - - - - - - - - - - - - 264
The Player on the *Vina* - - - - - - - 295
The VINA - - - - - - - - - - - - - 297
The VAJRACITA - - - - - - - - - - - 376
The Staff of FIRUZ SHAH - - - - - - - 379

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